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THE

PHARMACOPŒIA

OF THE

UNITED STATES OF AMERICA

SIXTH DECENNIAL REVISION

BY AUTHORITY OF THE

NATIONAL CONVENTION FOR REVISING THE PHARMACOPŒIA

Held at Washington, A.D. 1880

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Committee of Revision and Publication of the Pharmacopœia of the United States of America,

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HISTORICAL INTRODUCTION.

In January, 1817, Dr. Lyman Spalding submitted to the Medical Society of the County of New York a project for the formation of a National Pharmacopœia.*

Dr. Spalding's plan was as follows: The United States were to be divided into four districts—Northern, Middle, Southern, and Western; the New England States to form the Northern District; New York, New Jersey, Pennsylvania, Delaware, Maryland, and the District of Columbia, the Middle District; and the States south and west of these borders to constitute the other two districts.

The plan provided that a Convention should be called in each of these districts, to be composed of delegates from all the medical societies and schools situated within each of them. Each District Convention was to form a Pharmacopœia, and appoint delegates to a General Convention, to be held in Washington. To this General Convention the four District Pharmacopœias should be taken, and from the material thus brought together a National Pharmacopœia should be compiled. Dr. Spalding's plan was approved by the committee to which it was referred, and subsequently, through the agency of the Medical Society of the State of New York, was carried into effect. This society issued circulars requesting the co-operation of the several incorporated State Medical Societies, the several incorporated Colleges of Physicians and Surgeons, or Medical Schools, of such medical bodies as constituted a faculty in any incorporated university or college in the United States; and, in any State or Territory in which there was no incorporated medical society, college or school, voluntary associations of physicians and surgeons were invited to assist in the undertaking.

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* Previous to that time, European pharmacopœias were chiefly used as authorities, although, to supply the need for standards better suited to the requirements of this country, a Pharmacopœia had been published by the Massachusetts Medical Society in 1808, and another, by the New York Hospital, in 1816.

The following organizations approved the plan of forming a National Pharmacopœia and appointed delegates to district conventions: Massachusetts Medical Society, June 2, 1818; College of Physicians and Surgeons in the City of New York, June 25, 1818; Medical and Chirurgical Faculty of Maryland, June, 1818; Rhode Island Medical Society, September 1, 1818; Medical Society of South Carolina, September, 1818; Medical Society of the District of Columbia, October 5, 1818; Connecticut Medical Society, October 15, 1818; Medical Institution of Yale College, October 28, 1818; Vermont Medical Society, October, 1818; Board of Physicians and Surgeons of the First Medical District of the State of Indiana, November 3, 1818; College of Physicians and Surgeons of the Western District of the State of New York, January, 1819; College of Physicians of Philadelphia, February 2, 1819; Medical Faculty of Brown University, March 15, 1819; Medical School at Lexington, Ky., April, 1819; New Hampshire Medical Society, May 5, 1819; Medical Society of New Jersey, May 11, 1819; Medical Society of the State of Delaware, May, 1819; Medical Society of Georgia, May, 1819.

The Medical College of Ohio and the Medical Society of New Orleans approved the formation of a National Pharmacopœia, but did not appoint delegates.

The District Convention for the New England States was held in Boston, June 1, 1819, and a District Pharmacopœia was adopted.

The District Convention of the Middle States was held in Philadelphia, June 1, 1819, and two outlines of pharmacopœias, submitted by the delegates from New York and Philadelphia, were, by a committee there chosen, formed into one, which was adopted as the Pharmacopœia of the Middle District.

There were no conventions held in the Southern and Western Districts, but measures were taken, by those concerned, to secure a representation of the Southern District in the General Convention at Washington. The General Convention for the formation of a National Pharmacopœia assembled in the Capitol, at Washington, January 1, 1820, and elected Saml. L. Mitchill, M.D., President, and Thomas T. Hewson, M.D., Secretary.

The two Pharmacopœias prepared in the Northern and Middle Districts were submitted to examination, compared in detail, and their contents, with such additions as were thought necessary, consolidated into one work, which, after full revision, was adopted by the General Convention, and ordered to be published by a committee appointed for that purpose. It was published in Boston, December 15, 1820, in both the Latin and English languages, a second edition appearing in 1828.

Before adjourning, the General Convention of 1820 made arrangements for the future revision of the work. It instructed its President to issue, on January 1, 1828, writs of election to the several incorporated State Medical Societies and incorporated Medical Colleges and Schools in the Northern District, requiring them to ballot for three delegates to a General Convention to be held at Washington on January 1, 1830, for the purpose of revising the American Pharmacopœia; and that these several institutions be requested to forward to the President, on or before April 1, 1829, the names of three persons thus designated by ballot; and the President of the Convention was requested, on the said day, to assort and count the said votes, and to notify the three persons, who should have the greatest number of votes, of their election; and, in case there should not be three persons who had a greater number of votes than others, then the said President was desired to put a ballot into the box for each of those persons who had an equal number of votes, and draw therefrom such number of ballots as should make the number of delegates three, and notify as before directed.

This resolution was to apply in like manner to the Middle, Southern, and Western Districts.

Accordingly, there were to be three delegates from each of the four districts, the Convention thus to consist of twelve delegates.

Notwithstanding the care thus exercised by the Convention of 1820 to arrange for a Convention in 1830, a serious misunderstanding occurred, the result of which was that two Pharmacopœias were published in 1830—one in New York and one in Philadelphia.

The President issued, on January 1, 1828, writs of election, as instructed by the Convention of 1820; but, on account of a certain ambiguity of expression in the resolution of the Convention of 1820, and perhaps, also, in the communication of President Mitchill addressed to the various societies and colleges, some of the organizations did not correctly understand what was expected of them, and instead of sending to President Mitchill the state of the ballot, sent to him merely its result. It appears to have been the impression in many places that the societies addressed were to choose delegates, and that the delegates thus chosen were to proceed to Washington.

President Mitchill received returns from the Northern and Middle Districts, but none from the Southern and Western Districts. He counted the ballots returned to him, as he understood that they should be counted, and notified the three chosen by each of the two districts of their election, but the appointment of the delegates for the Middle District was not satisfactory to many of the medical societies of that region.

The delegates from the Northern and Middle Districts who had been notified by President Mitchill of their election, resolved, by general concurrence, and for the sake of convenience, to hold the meeting of the Convention at New York instead of at Washington, as directed by the authority under which they were chosen; Eli Ives, M.D., of Yale College, Connecticut, was elected President. As they were so few in number, they adjourned for six months in order to obtain assistance from the medical fraternity of the country. They issued a circular to each of the Medical Societies and Medical Institutions in the United States not represented in the Convention, requesting them to appoint a delegate to co-operate with this Convention in revising the American Pharmacopœia; and, provided no delegate should be appointed, or, if appointed, be unable to attend, said society or medical institution or delegates were requested to communicate their ideas, in relation to the revision of the Pharmacopœia, to the Convention at their next session to be held on the first Wednesday of June, 1830, at the College of Physicians and Surgeons of New York.

The Convention met, according to agreement, in New York, June 2, 1830, ten delegates being present, representing: Connecticut, South Carolina, New York, Ohio, and Western Massachusetts. They revised the Pharmacopœia of 1820, authorized the publication of their revision, and, before adjourning, provided for a subsequent revision in 1835. The book was published in New York, July, 1830.

In consequence of the dissatisfaction existing in the Middle District, arrangements were made to hold a Convention at Washington, January, 1830, which should be more fairly representative of the medical societies, colleges, and schools of the Middle District.

The Convention was held in the Capitol, at Washington, January 4, 1830. It consisted of eight delegates, two from New Jersey, two from Philadelphia, one from Delaware, one from Maryland and two from the District of Columbia, all members from the Middle District. Lewis Condict, M.D., of New Jersey, was elected President.

Since many sections of the United States were not represented at this Convention, and it appeared desirable that the various medical interests of the country should have their due representation, it was resolved, soon after the organization of the Convention, that the Surgeon-General of the Army, the senior surgeon of the Navy, stationed at Washington, and those Members of Congress who were practitioners of medicine, should be invited to participate in the proceedings.

In compliance with this invitation, the Surgeon-General, the senior naval surgeon, and three Members of Congress took their seats in the Convention, thus recruiting the number of the delegates to thirteen. The Convention appointed a Committee of Revision, consisting of a Chairman and two members from each of the following cities, viz.: Boston, New York, Philadelphia, Baltimore, Washington, Charleston, Lexington, and Cincinnati.

The Chairman of the Committee was requested to open a correspondence with the several members for the purpose of submitting to their examination a revised draft of the Pharmacopœia presented to the Convention by the delegates from Pennsylvania. He was also instructed to call a meeting of the Committee in Philadelphia. Any three members were constituted a quorum for the transaction of business, and, after a careful examination of the several communications that might be submitted to them, they were to prepare a revised edition of the Pharmacopœia, and make the necessary arrangements for its publication.

The Committee performed the duty imposed upon them, and their revision of the Pharmacopœia was published in Philadelphia in 1831.

Previous to adjournment, the Convention arranged for a Convention in 1840, by the following resolution: *Resolved*, That the President of this Convention shall, on the first day of January, 1839, issue a notice, requesting the different incorporated State Medical Societies, the incorporated Medical Colleges, and the incorporated Colleges of Physicians and Surgeons, throughout the United States, to elect a number of delegates, not exceeding three, to attend a General Convention to be held at Washington, D. C., on the first Monday in January, 1840.

The plan of the New York Convention for a revision of the Pharmacopœia in 1835 was subsequently abandoned. The plan of the Washington Convention for a revision in 1840 was quite generally recognized as the more feasible, and was fully carried out.

The notices for the choice of delegates to the Convention of 1840 were issued by Lewis Condict, M.D., President of the Washington Convention of 1830, in accordance with the resolution quoted above. The Convention assembled at Washington on the first day of January, 1840, twenty delegates being present, representing the Rhode Island Medical Society, the New Jersey Medical Society, the College of Physicians of Philadelphia, the University of Pennsylvania, the Jefferson Medical College of Philadelphia, the Delaware Medical Society, the Washington University of Baltimore, the Medical and Chirurgical Faculty of Maryland, the Medical Society of the District of Columbia, the Columbian Medical College, the Vincennes Medical Society of Indiana, and the Medical Society of Georgia.

The credentials of delegates from the Medical Society of Vermont, the Medical Society of New Hampshire, the Albany Medical College, and the College of Physicians and Surgeons of Lexington, Kentucky, were presented, but the delegates did not make their appearance during the session. Lewis Condict, M.D., of New Jersey, was elected President.

With the view of giving the various medical interests of the country proper representation in the Convention, the Surgeon-General of the Army and the senior naval surgeon at Washington, were invited to participate in the proceedings. The Convention appointed a Committee of Revision and Publication, consisting of seven members, three to form a quorum, and the meetings of the Committee to be held at Philadelphia. To this Committee were referred all communications received by the Convention from the various organizations represented. The Committee was authorized to request the co-operation of the colleges of pharmacy in the United States, and to publish the work after the completion of the revision. Valuable assistance was rendered the Committee by the Colleges of Pharmacy of Boston, New York, and Philadelphia, especially by the latter. The book was not published until early in the year 1842. In this revision the Latin version was omitted. The process of displacement or percolation was introduced for the first time.

Before adjourning, provision was made, by the following resolution, for a Convention in 1850:

"The President of this Convention shall, on the first day of May, 1849, issue a notice, requesting the several incorporated State Medical Societies, the incorporated Medical Colleges, the incorporated Colleges of Physicians and Surgeons, and the incorporated Colleges of Pharmacy, throughout the United States, to elect a number of delegates, not exceeding three, to attend a General Convention to be held at Washington, on the first Monday in May, 1850."

In accordance with this resolution, the Convention met at Washington, May 6, 1850, thirty delegates being present, representing: the Rhode Island Medical Society; the Geneva Medical College; the College of Pharmacy of the City of New York; the Medical Society of New Jersey; the College of Physicians, of Philadelphia; the University of Pennsylvania; the Jefferson Medical College, of Philadelphia; the Medical Faculty of the Pennsylvania College; the Medico-Chirurgical College of Philadelphia; the Philadelphia College of Pharmacy; the Medical Society of Delaware; the Medical and Chirurgical Faculty of Maryland; the Medical Society of the District of Columbia; the National Medical College, of the District of Columbia; the Medical Department of the National Institute; the Georgetown Medical College, and the Rush Medical College, of Chicago.

The credentials of delegates from the New Hampshire Medical Institution; the University of Buffalo; the Medical Department of Hampden-Sidney College; the Medical Society of South Carolina; the Medical College of Ohio; the Cincinnati College of Pharmacy; the Missouri Medical Society; the Wisconsin State Medical Society, and the Medical Faculty of the University of Iowa were presented, but the delegates did not make their appearance during the session.

Geo. B. Wood, M.D., of Philadelphia, was chosen President. The Surgeon-General of the Army and the Chief of the Bureau of Medicine and Surgery of the Navy Department were invited to participate in the proceedings.

The Convention appointed a Committee of Revision and Publication, consisting of the President of the Convention and three other members, three of whom should form a quorum; the meetings of the Committee to be in Philadelphia, and the Committee to publish the work after its revision.

The book was published in 1851 and a second edition in 1855. Before adjourning, the Convention of 1850 made arrangements for a Convention to be held on the first Wednesday in May, 1860, by a resolution similar to the one adopted by the Convention of 1840.

The Convention met in 1860, thirty delegates being present, representing: the Maine Medical Association; the Massachusetts Medical Society; the Massachusetts College of Pharmacy; the Connecticut State Medical Society; the Medical Society of the State of New York; the New York Academy of Medicine; the College of Pharmacy of the City of New York; the University of Pennsylvania; the Jefferson Medical College, of Philadelphia; the College of Physicians, of Philadelphia; the Philadelphia College of Pharmacy: the Delaware State Medical Society; the University of Maryland; the Maryland College of Pharmacy; the National Medical College, of Washington; the Medical Society of the District of Columbia; the United States Army, and the United States Navy. Geo. B. Wood, M.D., of Philadelphia, was chosen President.

A Committee of Revision and Publication was appointed, consisting of nine members, including the President of the Convention. To this Committee were referred all communications relating to the revision of the Pharmacopœia. Three members were to form a quorum. The Committee was to meet in Philadelphia, and was authorized to publish the work after its revision. The book was published in June, 1863. Before adjourning, the Convention made arrangements, by a resolution similar to the resolution adopted by the Convention of 1850, for a Convention in 1870.

In accordance with this resolution, a Convention met in Washington, Wednesday, May 4, 1870, sixty delegates being present, representing: the St. Louis Medical College; the Maryland College of Pharmacy; the Missouri Medical College; the St. Louis College of Pharmacy; the Chicago College of Pharmacy; the Jefferson Medical College; the Medical Society of the District of Columbia: the Medical College of Virginia; the Massachusetts College of Pharmacy; the Medical Society of the State of New York; the College of Physicians, of Philadelphia; the College of Pharmacy of the City of New York; the National Medical College, of Washington; the University of Pennsylvania; the Philadelphia College of Pharmacy: the College of Pharmacy of Baldwin University; the Medico-Chirurgical Society, of Louisville; the Baltimore Medical Association; the Medical Department of Georgetown College; the United States Army; the United States Navy; the Washington University, of Baltimore: the

Massachusetts Medical Society; the Maine Medical Association; the University of Buffalo; the Medical and Chirurgical Society of Maryland; the Baltimore Medical Association; the University of Nashville; the University of Maryland; the Pharmaceutical College of Howard University; the University of Virginia, and the Woman's Medical College, of Philadelphia.

Such Members of Congress as were graduates of regular medical schools, the Surgeon-General of the Army, and the Chief of the Bureau of Medicine and Surgery of the Navy Department, were invited to take seats in the Convention and participate in its deliberations. Joseph Carson, M.D., of Philadelphia, was elected President of the Convention.

A Committee of Revision and Publication, consisting of fifteen members, was appointed and given definite instructions as to the general plan to be followed in revising the Pharmacopœia.

Before adjourning, it was resolved that the rules adopted by the Convention of 1860, for the meeting of 1870, be adopted for the Convention of 1880, simply changing the dates.

The fifth revision of the Pharmacopœia was published in 1873.

ABSTRACT OF THE PROCEEDINGS

OF THE

NATIONAL CONVENTION OF 1880

FOR

REVISING THE PHARMACOPŒIA.

SIXTH DECENNIAL CONVENTION.

IN accordance with the call of Dr. James M. Morgan, the Assistant Secretary and last surviving officer of the Convention of 1870, the Convention for the Sixth Decennial Revision of the Pharmacopœia of the United States of America met in the National Medical College, in the City of Washington, D. C., on the 5th day of May, 1880, at 12 M.

James M. Morgan, M.D., of Washington, was elected Temporary Chairman, and D. W. Prentiss, M.D., of Washington, Temporary Secretary.

A Committee on Credentials, consisting of Dr. W. S. W. Ruschenberger, Mr. A. B. Taylor, of Philadelphia, and Mr. W. S. Thompson, of Washington, D. C., was appointed by the Chair, and the following delegates were admitted to seats:

CONNECTICUT—*Connecticut Medical Society:* C. A. Lindsley, M.D., Yale Medical Department, New Haven; *A. Woodward, M.D., Franklin; C. W. Chamberlain, M.D., Hartford.

DISTRICT OF COLUMBIA—*Medical Department of the University of Georgetown:* S. C. Busey, M.D., F. A. Ashford, M.D., C. H. A. Kleinschmidt, M.D. *Medical Society of the District of Columbia:* Daniel R. Hagner, M.D., Thomas Antisel, M.D., James E. Morgan, M.D. *National College of Pharmacy*, Washington: W. S. Thompson, Oscar Oldberg, Phar.D.; R. B. Ferguson. *National Medical College, Medical Department of Columbian University*, Washington: W. W. Johnston, M.D., D. W. Prentiss, M.D., E. T. Fristoe, LL.D. *Medical Department of Howard University*, Washington: * G. S. Palmer, M.D., John E. Brackett, M.D.

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* The asterisk indicates that the delegate was absent.

Illinois—*Chicago College of Pharmacy:* * E H. Sargent, * H. D. Garrison, Geo. M. Hambright, Ph.G. Alternates: * F. M. Goodman, Ph.G., * Thos. Whitfield, Geo. Buck. *Rush Medical College*, Chicago: * W. S. Haines, M.D., * J. S. Knox, M.D., * J. H. Etheridge, M.D.

Indiana—*Medical College of Indiana, Medical Department of Butler University*, Iowa City: * Chas. E. Wright, M.D.

Iowa—*Iowa State Medical Society:* * John North, M.D., Keokuk; P. J. Farnsworth, M.D., Clinton. *Medical Department of Iowa State University:* P. J. Farnsworth, M.D., Clinton.

Kentucky—*Louisville College of Pharmacy:* * Emil Scheffer, Ph.G., C. Lewis Diehl, Ph.G, * Vincent Davis, M.D.

Maryland—*Maryland College of Pharmacy*, Baltimore: Wm. S. Thompson, Ph.G., Louis Dohme, Ph.G., Joseph Roberts, Phar.D. Alternates: * Charles Caspari, Jr., Ph.G., J. F. Moore, M.D., Phar.D., * Robert Lautenbach, Ph.G., M.D. *Medical and Chirurgical Faculty of Maryland:* W. J. C. Du Hamel, M.D., Washington, D.C. *University of Maryland:* S. C. Chew, M.D.

Massachusetts—*Massachusetts College of Pharmacy*, Boston: G. F. H. Markoe, Ph.G., Samuel A. D. Sheppard, Ph.G., Thomas Doliber, Ph.G. *Massachusetts Medical Society:* Robert Amory, M.D., Brookline; * Robert T. Edes, M.D., Roxbury; Edward S. Wood, M.D., Cambridge. Alternates: * Wm. P. Bolles, M.D., Bennett F. Davenport, M.D.

Michigan—*Department of Medicine and Surgery of the University of Michigan*, Ann Arbor: * Geo. E. Frothingham, M.D., * A. B. Palmer, M.D. *University of Michigan, School of Pharmacy:* * Albert B. Prescott, M.D., Ann Arbor; * Volney M. Spalding, M.A., Ann Arbor; Henry B. Parsons, Ph.C., Washington, D. C.

Missouri—*Missouri Medical College*, St. Louis: Otto A. Wall, M.D., Ph.G. *St. Louis College of Pharmacy:* F. W. Sennewald, Ph.G., William H. Crawford, Ph.G., * Jas. M. Good, Ph.G.

New Hampshire—*Dartmouth Medical College*, Hanover: H. M. Field, M.D.

New York—*Bellevue Hospital Medical College*, New York: E. G. Janeway, M.D., A. A. Smith, M.D., F. A. Castle, M.D. *College of Medicine, Syracuse University:* Geo. R. Metcalfe, M.D. *College of Pharmacy of the City of New York:* Charles Rice, Ph.D., Fred. Hoffmann, Ph.D., P. W. Bedford, Ph.G. Alternates: * H. J. Menninger, M.D., * Paul Balluff, Ph.G., * E. P. Nichols, M.D. *College of Physicians and Surgeons in the City of New York:* John C. Peters, M.D., Laurence Johnson, M.D., * Leroy M. Yale, M.D. *College of Physicians and Surgeons, Medical Department of Columbia College*, New York: Edward Curtis, M.D. *Medical Society of the State of New York:* *Caleb Green, M.D., Homer; *J. D. Rushmore, M.D., Brooklyn; Wm. Manlius Smith, M.D., Manlius. *New York Academy of Medicine:* Laurence Johnson, M.D., John C. Peters, M.D. *Union University, Albany Medical College:* A. B. Huested, M.D. *University of the City of New York, Medical Department:* * W. H. Thomson, M.D., H. G. Piffard, M.D., F. R. Sturgis, M.D. *Woman's Medical College of the New York Infirmary:* Robert M. Fuller, M.D., Geo. H. Fox, M.D.

North Carolina—*Medical Society of the State of North Carolina:* Thomas F. Wood, M.D.

Ohio—*Cincinnati College of Pharmacy:* * Edward S. Wayne, M.D., Phar.D., J. F. Judge, M.D., Adolphus Fennel. *Miami Medical College*, Cincinnati: J. F. Judge, M.D., * J. C. Mackenzie, M.D. * Wm. B. Davis, M.D. Alternate: * Wm. H. Mussey, M.D.

Pennsylvania—*College of Physicians*, Philadelphia: W. S. W. Ruschenberger, M.D., Alfred Stillé, M.D., I. Minis Hays, M.D. *Jefferson Medical College*, Philadelphia: Robert E. Rogers, M.D., * Roberts Bartholow, M.D. *Medical Department of the University of Pennsylvania*, Philadelphia: Theo. G. Wormley, M.D., LL.D., Horatio C. Wood, M.D. *Pennsylvania College of Pharmacy:* Martin Roche, M.D., Lemuel J. Deal, M.D., Ph.D., * John S. Newton, M.D. *Philadelphia College of Pharmacy:* John M. Maisch, Phar.D., Alfred B. Taylor, Ph.G., Joseph P. Remington, Ph.G. *Philadelphia County Medical Society:* Henry H. Smith, M.D., Richard J. Dunglison, M.D., J. Howard Taylor, M.D. *Woman's Medical College of Pennsylvania*, Philadelphia: Clara Marshall, M.D.

Virginia—*University of Virginia, Medical Department*, Charlottesville: James L. Cabell, M.D.

United States Service—*Medical Department U. S. Army:* * J. J. Woodward, M.D., D. L. Huntington, M.D. *Medical Department*

U. S. Navy: B. F. Gibbs, M.D. *U. S. Marine Hospital Service:* Oscar Oldberg, Phar.D.

Subsequently, by special vote, the following gentlemen were admitted to seats in the Convention: Edward R. Squibb, M.D., of Brooklyn, and Mr. Charles A. Heinitsh, President of the Pennsylvania State Pharmaceutical Association.

A Nominating Committee having been appointed, consisting of thirty-eight members, one from each body represented, and one, each, from the United States Army, Navy, and Marine Hospital Service, this Committee subsequently nominated the following gentlemen as permanent officers of the Convention:

President: Robert Amory, M.D., of Brookline, Mass.

First Vice-President: Samuel C. Busey, M.D., of Washington, D. C.

Second Vice-President: P. W. Bedford, Ph.G., of New York.

Secretary: Frederick A. Castle, M.D., of New York.

Assistant Secretary: C. H. A. Kleinschmidt, M.D., of Washington, D.C.

All of whom were elected by the Convention.

Mr. A. B. Taylor presented, on behalf of the late Secretary, the minutes of the Convention of 1870, together with his own report as Secretary of the last Committee of Revision and Publication. The minutes were read by title; the Report, which was accepted, is as follows:

To the National Convention for Revising the Pharmacopœia of the United States.

The Secretary of the Committee of Revision and Publication, appointed in 1870, would respectfully offer the following Report:

In accordance with the resolution of the Convention of 1870, the Committee of Revision and Publication was convened by the President in June, 1870, and was organized by the appointment of Dr. Joseph Carson as Chairman and A. B. Taylor as Secretary.

The sessions of the Committee were held continuously from that time until June, 1873, when the Committee completed its labors and published the Pharmacopœia.

The preface to the book gives a general detail of the action of the Committee, and of the various changes made.

In furtherance of the revision of the work, there were handed to the Committee six contributions; two from medical societies, one of them a most elaborate and valuable report from the College of

Physicians of Philadelphia; the other report consisted of seven general suggestions in reference to proposed changes, but given in such general terms as to be of no value whatever to the Committee. The four remaining contributions were from colleges of pharmacy. One of these (perhaps the least valuable one) consisted of 21 suggestions, of which 4 were for the dismissal of articles, 3 for introductions, 6 for changes of definition, 2 for adding new tests, and the remaining 6 of a general character.

In the publication of the book an agreement was made with Messrs. J. B. Lippincott & Co., of Philadelphia, that the new edition should be published in good style: they referring to one of their publications as a sample of the size, quality of paper, and style of binding of the work. The price of the cloth-bound copies was fixed at $1.75 per copy. They agreed to furnish the Committee with such copies as might be needed by the Committee (not to exceed twenty-five copies) free of charge, and further agreed to pay the expenses of the Committee, which were not to exceed $300.

In pursuance of this agreement, Messrs. J. B. Lippincott & Co. published the work in good style, and it was sold at the specified price.

The expenses of the Committee were also paid, as agreed upon, the same amounting to $168.42.

A. B. TAYLOR,
Secretary of the Committee of Revision and Publication.

Suggestions for the revision of the Pharmacopœia were then received from the American Pharmaceutical Association, the College of Physicians of Philadelphia, the Louisville College of Pharmacy, the Massachusetts Medical Society, the Maryland College of Pharmacy, the National College of Pharmacy, the National Medical College, the Pennsylvania Pharmaceutical Association, the Philadelphia College of Pharmacy, and the Philadelphia County Medical Society.

These contributions were subsequently referred to the Committee of Revision and Publication.

It was *Resolved:* That the Nominating Committee be instructed to nominate a Committee of Revision and Publication of the Pharmacopœia, consisting of twenty-five members.

Resolved: That the Nominating Committee be instructed o report a plan for revising and publishing the Pharmacopœia, and to make provision for the revision of the Pharmacopœia in the future.

The Nominating Committee then presented the following names of delegates, to constitute the Committee of Revision and Publication of the Pharmacopœia of the United States of America: Messrs. Robert Amory, P. W. Bedford, Frederick A. Castle, C. Lewis Diehl, Louis Dohme, Thomas Doliber, D. L. Huntington, B. F. Gibbs, Laurence Johnson, J. F. Judge, John M. Maisch, G. F. H. Markoe, Oscar Oldberg, Henry B. Parsons, Henry G. Piffard, Joseph P. Remington, Charles Rice, W. S. W. Ruschenberger, Edward R. Squibb, Alfred B. Taylor, William S. Thompson, Otto A. Wall, Edward S. Wood, Thomas F. Wood, Theodore G. Wormley.

The report of the Nominating Committee was accepted, and the Committee declared constituted.

The Convention subsequently adopted the following Resolutions for the guidance of the Committee of Revision and Publication:

I. POWERS AND DUTIES OF THE COMMITTEE.

1. *Title of Committee.—Resolved*, That the title of the Committee be: "The Committee of Revision and Publication of the Pharmacopœia of the United States of America."

2. *Vacancies.—Resolved*, That the Committee of Revision and Publication be empowered to fill its own vacancies.

3. *Dropping of Members.—Resolved*, That any member of the Committee of Revision and Publication who shall neglect to perform the duties which have been assigned to and accepted by him, without presenting to the Committee a satisfactory excuse, may be dropped from membership, and that his place be filled by a new appointment by the Committee, consent of two-thirds of the entire Committee being requisite for so dropping a member.

4. *Employment of Experts.—Resolved*, That the Committee of Revision and Publication be authorized to employ skilled experts to make such trials and investigations as may be necessary to enable the Committee to pass intelligent judgment upon the details of the work before it, such trials and investigations to be made under the direction of the Committee.

5. *Publication of the Pharmacopœia.—Resolved*, That the Committee of Revision and Publication be instructed to award the publication of the United States Pharmacopœia to the publishing house offering the best terms; the Committee to hold the copyright; the price of the

book to be limited, and the book to be sold through the ordinary trade channels. Action under this resolution shall require the approval of a majority of the whole Committee.

6. *Supplements to the Pharmacopœia.* *Resolved*, That the Committee be authorized and directed to publish a supplement at the end of five years, or oftener, if deemed expedient.

7. *Plan for the next Decennial Revision.*—*Resolved*, That the Committee shall report a complete plan for the revision of the Pharmacopœia at the next Decennial Convention.

8. *Turning over Papers to next Convention.*—*Resolved*, That the Committee of Revision and Publication be instructed to turn over to the Convention of 1890 all the papers relative to its proceedings.

II. GENERAL PRINCIPLES TO BE FOLLOWED IN REVISING THE PHARMACOPŒIA.

1. *Language.*—The text of the U. S. Pharmacopœia is to be written in the English language; but the titles of the officinal substances and preparations are to be given, as heretofore, both in Latin and English.

2. *Alphabetical Arrangement.*—The present division into "Materia Medica" (comprising a Primary and a Secondary List) and "Preparations" is to be abolished, and all articles are to be arranged in a continuous, alphabetical order, retaining, however, such headings as Extracta, Extracta Fluida, Decocta, Infusa, etc., whenever it may be found useful to give general directions referring to the whole class. At the same time all formulæ for the preparation of the single members of each class shall be made complete in themselves.

3. *Synonyms.*—The different headings shall be accompanied, in a manner not interfering with the perspicuity of the text of the formulæ, by a list of synonyms in common use.

4. *Cross-References.*—At the end of each article a short paragraph is to be added, giving the names of all the preparations into which the substance or preparation, treated of in the article, enters.

5. *Descriptions of Crude Drugs.*—To all crude drugs of animal or vegetable origin, concise but complete descriptions are to be added, sufficient to indicate the distinctive characteristics visible to the naked eye, and, when necessary, such as are visible under an ordinary good pocket lens, magnifying about ten diameters. Where external and visible properties are insufficient to characterize the substance properly

(as in the case of gums, resins, balsams, etc.), it shall be further defined by its physical and chemical properties.

The botanical names of plants shall be accompanied by the name of the author, but all therapeutical discussion shall be omitted.

6. *Descriptions of Chemicals.*—All mineral substances, or chemical preparations, except those where differences in process produce different results, shall be described and defined by concise and complete tests of identity and purity, without giving processes. Processes for the preparation of morphia, quinia, and the other alkaloids are to be omitted, but the articles "Opium" and "Cinchona" shall be accompanied with detailed processes of assay for the alkaloids; and the minimum percentage of total alkaloids to be required in Cinchona, and the minimum and maximum percentage of morphia in opium, shall be prescribed in the Pharmacopœia.

7. *Chemical Formulæ.*—All chemicals of a definite composition shall have their primary, rational formulæ added, both according to the new and to the old notation, together with their atomic or molecular weights. The formulæ according to the new nomenclature shall be distinguished by prominent type.

8. *Processes for Chemicals.*—In the case of those chemical preparations, where different processes yield different results, the process to be followed in each case shall be described in detail.

9. *Parts by Weight.*—All measures of capacity shall be abandoned and quantities shall be expressed in *parts by weight;* except that in the case of Fluid Extracts, the Committee of Revision and Publication shall have authority to adopt such process or processes as shall seem to it best.

10. *Formulæ of Preparations at present officinal.*

a. All such tinctures, wines, etc., in which a slight variation of dose is of no importance, shall be made as nearly as possible of a uniform percentage strength; that is, 1 part of the drug shall be made into 5 parts of tincture, or into 10 parts of tincture, as the case may be.

b. In the case of highly active preparations, as *Tinctura Aconiti Radicis*, *Tinctura Nucis Vomicæ*, *Tinctura Opii*, *Tinctura Veratri Viridis*, the present strength shall be as nearly as possible retained; but in the liquid opium preparations, excepting Paregoric, the strength of 10 per cent. shall be adopted, if found advisable.

11. *Numerical Relation of Quantities.*—The quantities, or parts by weight, of the ingredients entering into a composition, shall be ex-

pressed in the simplest possible terms; and, whenever possible, in a centesimal ratio.

12. *Temperature* shall be expressed both in degrees of centigrade and in degrees of Fahrenheit, thus: 00° C. (00° F.).

13. *Definitions of Physical Properties.*—Varieties and degrees of color, consistence, transparency, fineness of powders, etc., shall be defined as closely as possible.

14. *Specific Gravity.*—A uniform method for taking the specific gravity of liquids shall be prescribed.

15. *Definite Expressions of Weight.*—Whenever it is necessary to employ definite expressions of weight, as, for instance, when it is directed that a pill-mass is to be divided into pills containing a certain weight of one or more constituents, this weight shall be expressed both in apothecaries' and in metric weight.

16. *Weight of Finished Product.*—In those formulæ (for syrups, infusions, etc.), in which fixed quantities of ingredients are directed to be combined under circumstances which may involve a partial loss of any of the ingredients (as, for instance, where a variable amount of water may be lost by evaporation), the weight of the intended finished product shall be specified, and, when practicable, shall be brought up to 100 parts.

17. *Doses.*—All doses shall be omitted from the Pharmacopœia

18. *Tables to be appended to the Pharmacopœia.*

a. List of Articles newly admitted into the Pharmacopœia.

b. List of Articles dismissed from the Pharmacopœia.

c. List of Changes of officinal Latin Titles.

d. List of Changes of officinal English Titles.

e. Table of Weights and Measures.

f. Table of the Solubility of the officinal Chemicals in Water and in Alcohol, at 15.5° C. (60° F.), and at their Boiling Points.

g. Alcoholometrical Table.

h. Acidimetrical Tables (meaning tables of the percentage and specific gravity of acids).

i. List of Reagents, for Qualitative and Quantitative (including Volumetric) use, of a fixed strength or dilution.

k. Table of the Elementary Substances, with their Symbols and Atomic Weight.

l. Weight and Volume Table. To facilitate the use of parts by weight (or, of the metric system), in compounding, prescribing, and dispensing medicines, a Table exhibiting the relationship between the weight and the measure of a given volume of any liquid preparation may be added. This should contain all the officinal liquids in alphabetical order.

m. Table of the Specific Gravity of officinal Liquids for each degree of temperature between 10° and 25° C. (50° and 77° F.).

n. A Table comparing the Strength of powerful Galenical Preparations of foreign Pharmacopœias used in this country, with that of the corresponding Preparations of our own.

o. A Table exhibiting the Differences in Strength of the Preparations, as made according to the Last and the New United States Pharmacopœia.

p. A Table of Thermometric Equivalents.

r. A Saturation Table.

s. Any other Tables which the Committee may deem expedient.

t. A full Index, containing all the Synonyms, should conclude the book, with Marks of Accent, to indicate pronunciation, as heretofore.

III. RESOLUTIONS FOR CALLING THE CONVENTION OF 1890.

Resolved, That the President of this Convention shall, on or about the first day of May, 1889, issue a notice requesting the several incorporated Medical Societies, the incorporated Medical Colleges, the incorporated Colleges of Pharmacy and incorporated Pharmaceutical Societies throughout the United States, and the American Medical Association and the American Pharmaceutical Association, to elect a number of delegates, not exceeding three, and the Surgeon-General of the Army, the Surgeon-General of the Navy, and the Surgeon-General of the Marine Hospital Service, to appoint, each, not exceeding three medical officers, to attend a General Convention for the Revision of the Pharmacopœia of the United States, to be held in Washington, D. C., on the first Wednesday of May, 1890.

Resolved, That the several bodies, as well as the Medical Departments of the Army, Navy, and Marine Hospital Service, thus addressed, shall also be requested by the President to submit the Pharmacopœia to a careful revision and to transmit the result of their labors, through their delegates, to the Committee of Revision, at least three months before the meeting of the Convention.

Resolved, That the several medical and pharmaceutical bodies shall be further requested to transmit to the President of this Convention the names and residences of their respective delegates, as soon as they shall have been appointed; a list of whom shall be published, under his authority, for the information of the medical public, in the newspapers and medical journals, in the month of March, 1890.

Resolved, That in the event of the death, resignation, or inability of the President of the Convention to act, these duties shall devolve, successively, in the following order of precedence: upon the Vice-Presidents, the Secretary, the Assistant Secretary, and the Chairman of the Committee of Revision and Publication of the Pharmacopœia.

After adopting a vote of thanks for hospitalities shown to the Convention, it then adjourned *sine die.*

PREFACE.

The Committee of Revision and Publication of the Pharmacopœia of the United States of America organized immediately after the adjournment of the Convention, by the election of officers. Two meetings of the Committee were held at Washington before the members separated. At these meetings the general plan for carrying on the work of revision was discussed, and a number of preliminary details were settled. Owing to the distances separating the members of the Committee, and the consequent impracticability of holding frequent meetings, the interchange of views and arguments was accomplished by circulars, and, at a subsequent meeting of the Committee, held at Saratoga Springs, September, 1880, a formal resolution was adopted to employ this method permanently for the circulation of reports and propositions, and for the return of the votes thereon. At the last-named meeting Albert B. Prescott, M.D., of Ann Arbor, and Emil Scheffer, Ph.G., of Louisville, were elected members of the Committee in place of T. G. Wormley, M.D., and Edward R. Squibb, M.D., resigned. The Committee has continued its labors, uninterruptedly, until the present time, and herewith respectfully submits the result to the public.

In accordance with previous custom, the Committee desires to present a review of the changes made in the contents, and in the arrangement of the text of the Pharmacopœia. Most of these changes were made in compliance with definite instructions received from the Convention, while others were adopted, after due deliberation and discussion, for reasons which will, in most cases, present themselves to the reader.

The instructions of the Convention (see pages xxiii to xxvi), have been carried out by the Committee as closely as possible.

Of synonyms, it was not deemed expedient to introduce a promiscuous list either in the text of the work or in the index. Common and well-known synonyms, however, such as are generally used in commercial or technical language, have been admitted, and, in some cases, special attention has been directed to erroneous terms, commonly employed to designate certain substances (see under *Chrysarobinum*, and *Calx Sulphurata*).

The cross-references, under the paragraph headed **Preparations,** at the end of many pharmacopœial articles, are not intended to include the titles of all preparations in the working formulæ of which the name of the article is mentioned. They are meant to include only those preparations which may be considered as being forms of administration and direct derivatives of the particular drug or preparation under which they are quoted, and, at the same time, such in which the identity of the original drug or preparation has not been materially altered.

If it be desired to ascertain the names of all the officinal preparations derived from any crude drug, the index may be consulted under the English, officinal name of the drug.

Particular attention has been bestowed upon tests of purity for chemicals, by establishing, wherever it seemed necessary, or was possible, definite limits for the amount of unavoidable impurities, and rigid tests for the absence of adulterants. The object of each test is added in parenthesis, so that there may be no doubt, in any case, regarding the meaning of the test—though in most cases the object would have been self-evident.

Whenever any substance is capable of being assayed (provided the assay or valuation is of practical utility), a process has been appended.

More attention has been paid than heretofore, to directions for keeping and preserving the crude drugs, chemicals, and preparations.

The nomenclature has been revised on the basis of certain general principles, which may be briefly stated as follows :

1. The officinal Latin title of a vegetable drug is to be the botanical genus-name. A few titles were excepted from this rule, being those of old and well-known drugs, as: *Belladonna, Frangula, Ipecacuanha, Pulsatilla, Senna, Stramonium,* etc.

2. The officinal Latin title, selected according to the preceding rule, is to denote, or stand for, the *part* of the plant directed to be used, provided only *one* part of the plant is officinal. Examples : *Aconitum* to stand for Aconite Root ; *Conium*, for Conium Seed ; *Hyoscyamus*, for Hyoscyamus Leaves, etc. But, if more than *one* part is in use, the part is to be specially mentioned in the title. Examples : *Belladonnæ Folia ; Belladonnæ Radix ; Stramonii Folia ; Stramonii Semen.*

3. The officinal English titles are to be the scientific, botanical (genus or species) names, rather than the vernacular names ; except in the case of

those drugs, where the vernacular names are derived from and still almost identical with the scientific names, or where long custom has sanctioned some other name.

4. The titles of compound medicines are to express their composition, or indicate their constituents, rather than their properties. In a few instances this rule is departed from, as it was deemed unwise to alter the titles of several well-known compounds, e. g., *Collodium Flexile, Pilulæ Catharticæ Compositæ.*

5. The Latin names of alkaloids have been made to terminate in *-ina*, and the corresponding English names in *-ine:* the latter termination being at present preferred, in modern chemical language, to the termination *-ia.* The so-called neutral principles have received the termination *-inum*, English *-in.* Examples: (*Alkaloids*) Morphina, Morphine; Quinina, Quinine. (*Neutral principles*) Picrotoxinum, Picrotoxin; Santoninum, Santonin.

6. The gender of the Latin nouns of salts in *-as* and *-is* has been changed back to the masculine gender, it having been shown that the alteration to the feminine gender, made in the Revision of 1860, was based on error.

7. A number of special alterations in nomenclature are made for reasons carefully considered in every case. Examples: *Alumen* to denote the Sulphate of Aluminium and Potassium, instead of the Sulphate of Aluminium and Ammonium; *Chirata, Asafœtida, Cambogia,* for Chiretta, Assafœtida, Gambogia; *Lupulinum, Glycerinum, Pyroxylinum,* for Lupulina, Glycerina, Pyroxylon; *Massa,* for Pilula (in the sense of "pill-mass"); *Sulphidum,* for Sulphuretum; *Manganum,* for Manganesium; *Bromum, Chlorum,* and *Iodum,* for Brominium, Chlorinium, and Iodinium, etc.

8. In the typographical arrangement and spelling of systematic, botanical terms, the rules of the International Botanical Congress (Paris, 1867) are adopted, so far as they can be applied. Accordingly, the species-names are printed with a small initial letter (even if derived from geographical names), *except* when the species-name had, at any previous time, itself been a genus-name, *e.g., Datura Stramonium; Rhamnus Frangula; Solanum Dulcamara;* or, when the species-name is derived from the name of a person, as *Strychnos Ignatii,* or *Artemisia,* etc., var. *Stechmanniana* (under *Santonica*); or when it is an indeclinable word, as *Erogonium Purga; Acacia Verek; Erythroxylon Coca.* Genus and species names are in different type from the name of the author, which follows the former

without interpunction ; authors' names, however, are not abbreviated, as is the rule in botanical works, but are printed in full.

The instruction, to substitute parts by weight (except in certain cases), for the actual weights and measures of the preceding Pharmacopœia has been carried out. In doing so, it has been the intention to adjust the proportions of the new formulæ so that the new preparations will not differ materially from the former. While this has been accomplished, in accordance with Instruction 10, in the majority of cases, yet there are instances in which a somewhat greater difference in strength has been adopted, either from a desire to render the preparation uniform with others of a similar character, or from therapeutical considerations, or for other reasons. Particular attention is called to the Table exhibiting the Differences of Strength of the Preparations as made according to the Last and the New Pharmacopœia (page 454).

In the case of Fluid Extracts, the Committee received discretionary power from the Convention to extend to them the system of parts by weight, or to select any other relation between the crude drug and the product. After much discussion and deliberation, the Committee decided to make them *measure* for *weight* as heretofore ; but to substitute the gramme and cubic centimeter for the troy ounce and the fluid ounce, which latter are not commensurate. The new fluid extracts will, therefore, differ about *five per cent.* in strength from those prepared according to the preceding Pharmacopœia. To show the relation of the crude drug to the finished fluid extract, when made by the process of this Pharmacopœia, or by that of the preceding one, the following synopsis is appended, in which metric, troy, and avoirdupois weight are quoted :

Weight of Drug.	*Measure of Fluid Extract.*	
	Pharm., 1880.	Pharm., 1870.
100 grammes of drug make	100 cubic centim.	94.9 cubic centim.
100 troy ounces of drug make...........	105.3 fluid ounces.	100 fluid ounces.
100 avoirdupois ounces of drug make....	96 fluid ounces.	91.1 fluid ounces.

A number of obsolete and unused drugs and preparations have been dismissed. Possibly the number could have been increased, but it was deemed best to refrain from dropping those which were, on inquiry, found to be in rather more than purely local use.

The following statistics will give an idea of the general character of the alterations made in the scope and contents of the work.

The total number of titles of crude drugs and preparations (not counting headings of chapters), in the last Pharmacopœia (of 1870), was 970. Of this number, 330 constituted the Primary, and 72 the Secondary List of the Materia Medica, while the remainder, viz. 568, were Preparations.

In the present revision, 63 of the Primary List, 45 of the Secondary List, and 121 Preparations have been dismissed: making, in all, 229 titles. The number of new titles added is 256, and the total number of titles in the present revision is, therefore, 997.

The dismissed articles comprise 78 crude drugs (almost all of vegetable origin), 28 inorganic drugs or chemicals, 106 pharmaceutical preparations, and 17 miscellaneous substances. Among the dismissed pharmaceutical preparations are: 2 Waters, 3 Cerates, 3 Confections, 10 Decoctions, 2 Plasters, 13 Solid Extracts, 2 Fluid Extracts, 5 Glycerites, 29 Infusions, 4 Solutions, 5 Oils, 2 Juices, 3 Pills or Pill-masses, 9 Suppositories, 7 Tinctures, 7 Ointments, and 3 Wines.

The newly added articles may be thus classified: 30 crude drugs (derived from the vegetable kingdom), 60 inorganic drugs or chemicals, 150 pharmaceutical preparations, and 16 miscellaneous substances. Among the new pharmaceutical preparations are: 11 Abstracts, 10 Solid Extracts, 35 Fluid Extracts, 11 Syrups, 22 Tinctures, and 6 Wines.

The respective decrease and increase of the number of articles or titles belonging to the more important groups of pharmaceutical preparations may be seen from the following synopsis:

Decrease from the Pharmacopœia of 1870: Vinegars, from 6 to 4; Waters, from 17 to 15; Cerates, from 10 to 8; Confections, from 5 to 3; Decoctions, from 12 to 2; Solid Extracts, from 34 to 32; Glycerites, from 5 to 2; Infusions, from 31 to 5; Pills, from 19 to 15; Suppositories, from 9 to 0; Ointments, from 29 to 26.

Increase over the Pharmacopœia of 1870: Abstracts, from 0 to 11; Acids, from 27 to 31; Fluid Extracts, from 46 to 79; Liniments, from 9 to 10; Mixtures, from 8 to 11; Oils, from 43 to 51; Powders, from 7 to 9; Spirits, from 16 to 22; Syrups, from 23 to 34; Tinctures, from 57 to 73; Troches, from 13 to 16; and Wines, from 9 to 14.

Among the new articles introduced into the Pharmacopœia, a few appear to require special mention.

To supply a demand, which has arisen for dry, powdered extracts, a new class of preparations has been introduced, under the title of Abstracta. As will be seen on examination, these are just twice the strength of the crude drug, or about twice the strength of the corresponding fluid extracts.

General directions for preparing Triturations, and Tinctures from Fresh Plants have been introduced, to insure uniformity in their preparation, if prescribed by physicians.

The diluted acids of the Pharmacopœia, with the exception of Acidum

Hydrocyanicum Dilutum, have been adjusted so as to contain, as nearly as possible, ten per cent. of absolute acid.

In accordance with the general demand of the medical profession, a new base for ointments, derived from petroleum, has been added under the title Petrolatum, with a minimum and maximum melting point; but the Committee has not felt justified, as yet, in officially directing the use of this base in the preparation of ointments and cerates, preferring to leave this to the individual judgment of the prescriber.

After much deliberation, the Committee came to the conclusion that the introduction of a series of Elixirs was neither desirable nor necessary; yet in compliance with a general wish for a pleasant vehicle for the administration of nauseous medicines, an Elixir of Orange has been introduced.

The atomic weights of elementary substances have been selected, with care, from what appeared to be the most reliable determinations. The values are given with only one decimal, which is increased by 1 in case the second decimal was originally 5 or over.

Among the tables to be inserted into the work, according to the instructions of the Convention, are a few which could not be prepared by the Committee up to the present time. These are the Weight and Volume Table, the Table of the Specific Gravity of Officinal Liquids for each degree between 10° and 25° C. (50° and 77° F.), and the Table comparing the Strength of powerful Galenical Preparations of foreign Pharmacopœias used in this country, with that of the corresponding Preparations of our own. It is expected that these Tables will be subsequently inserted in a Supplement to the Pharmacopœia.

The Committee has received valuable assistance from many gentlemen, not members of the Committee, particularly from Edward R. Squibb, M.D., of Brooklyn, N. Y.; Prof. J. U. Lloyd, of Cincinnati, O.; Prof. F. B. Power, Ph.D., of Philadelphia, Pa.; Dr. Fred. Hoffmann and Mr. Charles W. Parsons, of New York; Mr. R. C. Clark, of Corry, Pa.; Mr. S. A. D. Sheppard, of Boston, Mass.; Mr. Charles Mohr, of Mobile, Ala.; Prof. C. R. Alder-Wright, Ph.D., of London, and Dr. Bruno Hirsch, of Frankfurt-am-Main. It is also indebted to Dr. Otto Hehner, of London, for his permission to insert the Alcohol Tables compiled by him.

In order that the Committee may hereafter be the better able to decide upon the propriety of retaining or omitting certain articles, now officinal, it is requested of all persons engaged in the sale of medicines, that, on or about the first day of January, of the years 1884 and 1889, they will report to the Chairman of the Committee a list of those articles and preparations which have not been prescribed at all, and of those seldom prescribed previous to those dates; and, also, any objections, suggested by experience, to the practical working or observance of the methods prescribed in this work.

Charles Rice, Ph.D., New York, *Chairman.*
Joseph P. Remington, Ph.G., Philadelphia, Pa., *First Vice-Chairman.*
C. Lewis Diehl, Ph.G., Louisville, Ky., *Second Vice-Chairman.*
P. Wendover Bedford, Ph.G., New York, *Secretary.* *
Thomas Doliber, Ph.G., Boston, Mass., *Treasurer.*
Robert Amory, M.D., Brookline, Mass.
Frederick A. Castle, M.D., New York.
Louis Dohme, Ph.G., Baltimore, Md.
David L. Huntington, M.D., Washington, D. C.
Benjamin F. Gibbs, M.D., Washington, D. C.*
Laurence Johnson, A.M., M.D., New York.
John F. Judge, M.D., Cincinnati, O. *
John M. Maisch, Phar.D., Philadelphia, Pa.
George F. H. Markoe, Ph.G., Boston, Mass.
Oscar Oldberg, Phar.D., St. Louis, Mo.
Henry B. Parsons, Ph.C., New York. *
Henry G. Piffard, A.M., M.D., New York.
Albert B. Prescott, M.D., Ann Arbor, Mich.
William S. W. Ruschenberger, M.D., Philadelphia, Pa.
Emil Scheffer, Ph.G., Louisville, Ky.
Alfred B. Taylor, Ph.G., Philadelphia, Pa.
William S. Thompson, Washington, D.C.
Otto A. Wall, Ph.G., M.D., St. Louis, Mo.
Edward S. Wood, M.D., Cambridge, Mass.
Thomas F. Wood, M.D., Wilmington, N. C. *

Committee of Revision and Publication of the Pharmacopœia of the United States of America (1880–1890).

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* Deceased.

PRELIMINARY NOTICES.

FINENESS OF POWDER.

The fineness of powder is expressed, in the Pharmacopœia, either by descriptive words (generally so in the case of brittle or easily pulverizable substances), or in terms expressing the number of meshes to a linear inch, in the sieve.

These different forms of expression correspond to each other as follows:

A *very fine* powder	should pass through a sieve having 80 or more meshes to the linear inch	= No. 80 powder.
A *fine* powder	should pass through a sieve having 60 meshes to the linear inch	= No. 60 powder.
A *moderately fine* powder	should pass through a sieve having 50 meshes to the linear inch	= No. 50 powder.
A *moderately coarse* powder	should pass through a sieve having 40 meshes to the linear inch	= No. 40 powder.
A *coarse* powder	should pass through a sieve having 20 meshes to the linear inch	= No. 20 powder.

In certain cases, powders of a different degree of fineness (*e.g.*, No. 30, No. 12) are directed to be taken.

When a substance is directed to be in powder of a limited degree of fineness, as specified by the number of meshes to the linear inch in the sieve, not more than a small proportion of the powder should be able to pass through a sieve having ten meshes more to the linear inch.

PERCOLATION.

The process of percolation, or displacement, directed in this Pharmacopœia, consists in subjecting a substance or substances, in powder, contained in a vessel called a percolator, to the solvent action of successive portions of menstruum in such a manner that the liquid, as it traverses the powder in its descent to the recipient, shall be charged with the soluble portion of it, and pass from the percolator free from insoluble matter.

When the process is successfully conducted, the first portion of the liquid, or percolate, passing through the percolator will be nearly saturated with the soluble constituents of the substance treated; and if the quantity of menstruum be sufficient for its exhaustion, the last portion of the percolate will be destitute of color, odor, and taste, other than that possessed by the menstruum itself.

The percolator most suitable for the quantities contemplated by this Pharmacopœia should be nearly cylindrical, or slightly conical, with a funnel-shaped termination at the smaller end. The neck of this funnel-end should be rather short, and should gradually and regularly become narrower toward the orifice, so that a perforated cork, bearing a short glass tube, may be tightly wedged into it from within until the end of the cork is flush with its outer edge. The glass tube, which must not protrude above the inner surface of the cork, should extend from one and one-eighth to one and one-half inch (3 to 4 centimeters) beyond the outer surface of the cork, and should be provided with a closely fitting rubber tube, at least one-fourth longer than the percolator itself, and ending in another short glass tube, whereby the rubber tube may be so suspended that its orifice shall be above the surface of the menstruum in the percolator, a rubber band holding it in position.

The dimensions of such a percolator, conveniently holding five hundred grammes of powdered material, are preferably the following: Length of body, fourteen inches (36 centimeters); length of neck, two inches (5 centimeters); internal diameter at top, four inches (10 centimeters); internal diameter at beginning of funnel-shaped end, two and one-half inches (6.5 centimeters); internal diameter of the neck, one-half inch (12 millimeters), gradually reduced at the end to two-fifths of an inch (10 millimeters). It is best, constructed of glass, but, unless so directed, may be constructed of a different material.

The percolator is prepared for percolation by gently pressing a small tuft of cotton into the space of the neck above the cork, and a small layer of clean and dry sand is then poured upon the surface of the cotton to hold it in place.

The powdered substance to be percolated (which must be uniformly of the fineness directed in the formula, and should be perfectly air-dry before it is weighed) is put into a basin, the specified quantity of menstruum is poured on, and it is thoroughly stirred with a spatula, or other suitable instrument, until it appears uniformly moistened. The moist powder is then passed through a coarse sieve—No. 40 powders, and those which are finer, requiring a No. 20 sieve, whilst No. 30 powders require a

No. 15 sieve for this purpose. Powders of a less degree of fineness usually do not require this additional treatment after the moistening. The moist powder is now transferred to a sheet of thick paper and the whole quantity poured from it into the percolator. It is then shaken down lightly and allowed to remain in that condition for a period varying from fifteen minutes to several hours, unless otherwise directed ; after which the powder is pressed, by the aid of a plunger of suitable dimensions, more or less firmly, in proportion to the character of the powdered substance and the alcoholic strength of the menstruum ; strongly alcoholic menstrua, as a rule, permitting firmer packing of the powder than the weaker. The percolator is now placed in position for percolation, and, the rubber tube having been fastened at a suitable height, the surface of the powder is covered by an accurately fitting disk of filtering paper, or other suitable material, and a sufficient quantity of the menstruum poured on through a funnel reaching nearly to the surface of the paper. If these conditions are accurately observed, the menstruum will penetrate the powder equally until it has passed into the rubber tube and has reached, in this, the height corresponding to its level in the percolator, which is now closely covered to prevent evaporation, and the apparatus allowed to stand at rest for the time specified in the formula.

To begin percolation, the rubber tube is lowered and its glass end introduced into the neck of a bottle previously marked for the quantity of liquid to be percolated, if the percolate is to be measured, or of a tared bottle, if the percolate is to be weighed ; and by raising or lowering this recipient, the rapidity of percolation may be increased or lessened as may be desirable, observing, however, that the rate of percolation, unless the quantity of material taken in operation is largely in excess of the pharmacopœial quantities, shall not exceed the limit of ten to thirty drops in a minute. A layer of menstruum must constantly be maintained above the powder, so as to prevent the access of air to its interstices, until all has been added, or the requisite quantity of percolate has been obtained. This is conveniently accomplished, if the space above the powder will admit of it, by inverting a bottle containing the entire quantity of menstruum over the percolator in such a manner that its mouth may dip beneath the surface of the liquid, the bottle being of such shape that its shoulder will serve as a cover for the percolator.

When the dregs of a tincture, or similar preparation, are to be subjected to percolation, after maceration with all or with the greater portion of the menstruum, the liquid portion should be drained off as completely as possible, the solid portion packed in a percolator, as before described, and the liquid poured on, until all has passed from the surface, when immediately a sufficient quantity of the original menstruum should be poured on to displace the absorbed liquid, until the prescribed quantity has been obtained.

Modification of the above process.

Authority is given to employ, in the case of Fluid Extracts, where it may be applicable, the process of Repercolation, without change of the initial menstruum.

SPECIFIC GRAVITY.

The specific gravity of liquids should be ascertained, if accuracy is required, by means of a specific gravity bottle, of suitable capacity, at a definite temperature. The specific gravity of alcohol or of any mixture of alcohol and water may, however, also be ascertained by means of an accurate hydrometer, preferably that prescribed by the United States Government for the use of internal revenue and custom house officers.

Whenever specific gravity is mentioned in the Pharmacopœia, without reference to temperature, it is to be understood to refer to a temperature of 15° C. (59° F.).

TEMPERATURE.

When there is occasion to indicate the degree of heat or of cold, the scale of the centigrade thermometer, or, in its absence, that of Fahrenheit's thermometer, is to be employed. (See the tables on pages 402–406.)

By the term *gentle* heat is meant any temperature between about 32° and 38° C. (about 90° and 100° F.).

15° C. (59° F.) has been adopted, in accordance with the prevailing usage in modern chemical literature, as the standard temperature for the solubility of substances in liquids and for taking specific gravity. In the case of alcohol and wine, however, the temperature of 60° F. (15.6° C.) has been, for the present, retained, since all the laws and regulations of the United States, referring to alcohol and alcoholic liquids in general, are still based on this degree of temperature. The Table of Percentage and Specific Gravity of Ammonia (page 425) is based upon the temperature of 14° C. (57.2° F.).

When a liquid is directed to be freed from alcohol or other volatile menstrua, at a limited temperature (as, for instance, in the preparation of extracts), the evaporation may be conducted with greater economy and less risk of injuring the product, by using a vacuum-apparatus of suitable construction.

WEIGHTS AND MEASURES.

The working formulæ of the Pharmacopœia are so constructed that, in their practical application, any system of weights or, in certain cases, measures, may be used. To carry out the official directions for the preparation of fluid extracts, however, the use of the metric weights and measures will be found most convenient, as the metric units are there directly referred to in stating definite quantities.

The weights and measures *referred to by physicians in prescribing, and used by pharmacists in dispensing medicines*, are, in the United States, either those of the APOTHECARIES' or TROY SYSTEM OF WEIGHTS and the WINE MEASURE, or those of the METRIC SYSTEM.

The units, according to these systems, respectively, are as follows:

UNITS OF TROY WEIGHT.

The grain.
The drachm, containing 60 grains.
The troy ounce, containing 8 drachms, or 480 grains.

The signs used by physicians in designating units by troy weight are: gr. (which should always be written with a *small* initial), denoting grain or grains; ʒ, denoting drachm or drachms; and ℥, denoting troy ounce or troy ounces. The old unit, called a scruple, is also sometimes used, the sign ℈ being employed to denote scruple or scruples. The numerals, indicating the number of weight units to be taken, are, when troy weights are used, always to be placed *after* the sign, and in *Roman* figures, thus: gr. x.; ʒ vj.; ℥ iij.; ℈ ij.

UNITS OF FLUID MEASURE.

The minim.
The fluidrachm, containing 60 minims.
The fluidounce, containing 8 fluidrachms, or 480 minims.

The signs used to designate these units are: ♏, denoting minim or minims; fʒ, denoting fluidrachm or fluidrachms; and f℥, denoting fluidounce or fluidounces. The quantities directed to be taken are to be indicated by *Roman* numerals placed *after* the signs, as in the case when troy weights are used; thus: ♏x.; fʒ vj.; f℥ xij.

RELATION OF TROY WEIGHT AND FLUID MEASURE.

One American minim of pure water, at its maximum density, weighs 0.95 grain. The relations of the above units of weight and measure are, therefore, as follows:

Measure.		Weight.
1 minim	=	0.95 grains.
1 fʒ	=	56.96 "
1 f℥	=	455.69 "

Weight.		Measure.
1 grain	=	1.05 minims.
1 ʒ	=	63.2 "
1 ℥	=	505.6 "

UNITS OF THE METRIC SYSTEM OF WEIGHTS AND MEASURES.

Units of Linear Measure.—The METER, the ten-millionth part of the quadrant of the earth, is the standard unit. Upon it the whole system depends. It is divided and subdivided as follows:

1 Meter is equal to 10 decimeters, or to 100 centimeters, or to 1000 millimeters.
1 Decimeter is equal to 10 centimeters, or to 100 millimeters.
1 Centimeter is equal to 10 millimeters.

Units of Measures of Capacity.—The LITER, the cube of one decimeter, is equal to 1000 cubic centimeters.*

Units of Weight.—The GRAMME,† the weight of one one-thousandth part of a liter of water, at its maximum density, is the standard unit. It is divided and subdivided as follows:

1 Gramme is equal to 10 decigrammes, or to 100 centigrammes, or to 1000 milligrammes.
1 Decigramme is equal to 10 centigrammes, or to 100 milligrammes.
1 Centigramme is equal to 10 milligrammes.

In expressing quantities by weight or by measure, in writing, according to the *metric system*, the common, *Arabic* numerals are used and are always placed *before* the signs or terms designating the units, thus: 6.50 Gm.; 10.5 C.c.

RELATION OF METRIC WEIGHT TO METRIC MEASURE.

1 Cubic Centimeter of pure water, at its maximum density, weighs 1 gramme.

RELATION OF METRIC WEIGHTS AND MEASURES TO APOTHECARIES' WEIGHTS AND MEASURES.

1 grain = 0.06479895 gramme.‡
1 gramme = 15.43234874 grains.
1 minim = 0.061613 cubic centimeter,§ weighing 0.95 grain, or 0.0616 gramme.
1 meter = 39.370432 inches.

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* The words Cubic Centimeter, when abbreviated, are written C.c.

† The word Gramme, when abbreviated, is written Gm.

‡ Calculated from the value of the gramme in grains.

§ Calculated from the value of the meter in English inches.

Commercial Weights and Measures.

The commercial weights and measures of the United States of America are:

The avoirdupois pound (of 7000 grains), divided into 16 ounces of 437.5 grains, each.

The (wine-) gallon (of 231 cubic inches), divided into 4 quarts, or 8 pints.

1 pint is equal to 16 fluid ounces.

At the temperature of 15.6° C. (60° F.) a pint of distilled water weighs 7291.2 grains, and a fluidounce weighs 455.7 grains.

PHARMACOPŒIA

OF THE

UNITED STATES OF AMERICA.

THE PHARMACOPŒIA

OF THE

UNITED STATES OF AMERICA.

ABSINTHIUM.

ABSINTHIUM.

[WORMWOOD.]

The leaves and tops of *Artemisia Absinthium* Linné (Nat. Ord., *Compositæ*).

Leaves about two inches (5 centimeters) long, hoary, silky-pubescent, petiolate, roundish-triangular in outline, pinnately two- or three-cleft, with the segments lanceolate, the terminal one spatulate, bracts three-cleft or entire; heads numerous, subglobose, with numerous, small, pale yellow florets, all tubular and without pappus; odor aromatic; taste persistently bitter.

Preparation: Vinum Aromaticum.

ABSTRACTUM ACONITI.

ABSTRACT OF ACONITE.

Aconite, in No. 60 powder, *two hundred parts*	200
Tartaric Acid, *two parts*	2
Sugar of Milk, recently dried and in fine powder,	
Alcohol, each, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the Aconite with *eighty* (80) *parts* of Alcohol, in which the Tartaric Acid has previously been dissolved, and pack firmly in a cylindrical glass percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Aconite is exhausted. Reserve the first *one* *hundred and seventy* (170) *parts* of the percolate, evaporate the remainder to *thirty* (30) *parts*, at a temperature not exceeding 50° C. (122° F.) and mix with the reserved portion. Place the mixture in an evaporating dish, and, having added *fifty* (50) *parts* of Sugar of Milk, cover it with a piece of thin muslin gauze, and set aside in a warm place, where the temperature will not rise above 50° C. (122° F.), until the mixture is dry. Lastly, having added enough Sugar of Milk to make the mixture weigh *one hundred* (100) *parts*, reduce it to a fine, uniform powder.

Preserve the powder in a well-stopped bottle.

ABSTRACTUM BELLADONNÆ.

ABSTRACT OF BELLADONNA.

Belladonna Root, in No. 60 powder, *two hundred parts*	200
Sugar of Milk, recently dried and in fine powder,	
Alcohol, each, *a sufficient quantity*,	
To make *one hundred parts*....	100

Moisten the Belladonna Root with *eighty* (80) *parts* of Alcohol and pack firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Belladonna Root is exhausted. Reserve the first *one hundred and seventy* (170) *parts* of the percolate, evaporate the remainder to *thirty* (30) *parts*, at a temperature not exceeding 50° C. (122° F.), and mix with the reserved portion. Place the mixture in an evaporating dish, and, having added *fifty* (50) *parts* of Sugar of Milk, cover it with a piece of thin muslin gauze, and set aside in a warm place, where the temperature will not rise above 50° C. (122° F.), until the mixture is dry. Lastly, having added enough Sugar of Milk to make the mixture weigh *one hundred* (100) *parts*, reduce it to a fine, uniform powder.

Preserve the powder in a well-stopped bottle.

ABSTRACTUM CONII.

ABSTRACT OF CONIUM.

Conium, in No. 40 powder, *two hundred parts*	200
Diluted Hydrochloric Acid, *six parts*	6
Sugar of Milk, recently dried and in fine powder,	
Alcohol, each, *a sufficient quantity*,	
To make *one hundred parts*....	100

Mix the Hydrochloric Acid with *eighty* (80) *parts* of Alcohol, and, having moistened the Conium with the mixture, pack firmly in a cylindrical glass percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Conium is exhausted. Reserve the first *one hundred and seventy* (170) *parts* of the percolate, evaporate the remainder to *thirty* (30) *parts*, at a temperature not exceeding 50° C. (122° F.), and mix with the reserved portion. Place the mixture in an evaporating dish, and, having added *fifty* (50) *parts* of Sugar of Milk, cover it with a piece of thin muslin gauze, and set aside in a warm place, where the temperature will not rise above 50° C. (122° F.), until the mixture is dry. Lastly, having added enough Sugar of Milk to make the mixture weigh *one hundred* (100) *parts*, reduce it to a fine, uniform powder.

Preserve the powder in a well-stopped bottle.

ABSTRACTUM DIGITALIS.

ABSTRACT OF DIGITALIS.

Digitalis, recently dried and in No. 60 powder, *two hundred parts* . .	200
Sugar of Milk, recently dried and in fine powder,	
Alcohol, each, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the Digitalis with *eighty* (80) *parts* of Alcohol, and pack firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Digitalis is exhausted. Reserve the first *one hundred and seventy* (170) *parts* of the percolate, evaporate the remainder to *thirty* (30) *parts*, at a temperature not exceeding 50° C. (122° F.), and mix with the reserved portion. Place the mixture in an evaporating dish, and, having added *fifty* (50) *parts* of Sugar of Milk, cover it with a piece of thin muslin gauze, and set aside in a warm place, where the temperature will not rise above 50° C. (122° F.), until the mixture is dry. Lastly, having added enough Sugar of Milk to make the mixture weigh *one hundred* (100) *parts*, reduce it to a fine, uniform powder.

Preserve the powder in a well-stopped bottle.

ABSTRACTUM HYOSCYAMI.

ABSTRACT OF HYOSCYAMUS.

Hyoscyamus, recently dried and in No. 60 powder, *two hundred parts* 200
Sugar of Milk, recently dried and in fine powder,
Alcohol, each, *a sufficient quantity*,

To make *one hundred parts*.... 100

Moisten the Hyoscyamus with *eighty* (80) *parts* of Alcohol, and pack firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Hyoscyamus is exhausted. Reserve the first *one hundred and seventy* (170) *parts* of the percolate, evaporate the remainder to *thirty* (30) *parts*, at a temperature not exceeding 50° C. (122° F.), and mix with the reserved portion. Place the mixture in an evaporating dish, and, having added *fifty* (50) *parts* of Sugar of Milk, cover it with a piece of thin muslin gauze, and set aside in a warm place, where the temperature will not rise above 50° C. (122° F.), until the mixture is dry. Lastly, having added enough Sugar of Milk to make the mixture weigh *one hundred* (100) *parts*, reduce it to a fine, uniform powder.

Preserve the powder in a well-stopped bottle.

ABSTRACTUM IGNATIÆ.

ABSTRACT OF IGNATIA.

Ignatia, in No. 60 powder, *two hundred parts*.................. 200
Sugar of Milk, recently dried and in fine powder,
Alcohol,
Water, each, *a sufficient quantity*,

To make *one hundred parts*.... 100

Mix Alcohol and Water in the proportion of *eight* (8) *parts* of Alcohol to *one* (1) *part* of Water, and, having moistened the Ignatia with *one hundred* (100) *parts* of the menstruum, pack firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Ignatia is exhausted. Reserve the first *one hun-*

dred and seventy (170) *parts* of the percolate, distil off the alcohol from the remainder, and mix the residue with the reserved portion. Place the mixture in an evaporating dish, and, having added *fifty* (50) *parts* of Sugar of Milk, cover it with a piece of thin muslin gauze, and set aside in a warm place, where the temperature will not rise above 50° C. (122° F.), until the mixture is dry. Lastly, having added enough Sugar of Milk to make the mixture weigh *one hundred* (100) *parts*, reduce it to a fine, uniform powder.

Preserve the powder in a well-stopped bottle.

ABSTRACTUM JALAPÆ.

ABSTRACT OF JALAP.

Jalap, in No. 40 powder, *two hundred parts*....................	200
Sugar of Milk, recently dried and in fine powder,	
Alcohol, each, *a sufficient quantity*,	
To make *one hundred parts*....	100

Moisten the Jalap with *one hundred* (100) *parts* of Alcohol, and pack firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Jalap is exhausted. Reserve the first *one hundred and seventy* (170) *parts* of the percolate, distil off the Alcohol from the remainder, and mix the residue with the reserved portion. Place the mixture in an evaporating dish, and, having added *fifty* (50) *parts* of Sugar of Milk, cover it with a piece of thin muslin gauze, and set aside in a warm place, where the temperature will not rise above 50° C. (122° F.), until the mixture is dry. Lastly, having added enough Sugar of Milk to make the mixture weigh *one hundred* (100) *parts*, reduce it to a fine, uniform powder.

Preserve the powder in a well-stopped bottle.

Preparation: Pilulæ Catharticæ Compositæ.

ABSTRACTUM NUCIS VOMICÆ.

ABSTRACT OF NUX VOMICA.

Nux Vomica, in No. 60 powder, *two hundred parts*.............	200
Sugar of Milk, recently dried and in fine powder,	
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred parts*....	100

Mix Alcohol and Water in the proportion of *eight* (8) *parts* of Alcohol to *one* (1) *part* of Water, and, having moistened the Nux Vomica with *one hundred* (100) *parts* of the menstruum, pack firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Nux Vomica is exhausted. Reserve the first *one hundred and seventy* (170) *parts* of the percolate, distil off the alcohol from the remainder, and mix the residue with the reserved portion. Place the mixture in an evaporating dish, and, having added *fifty* (50) *parts* of Sugar of Milk, cover it with a piece of thin muslin gauze, and set aside in a warm place, where the temperature will not rise above 50° C. (122° F.), until the mixture is dry. Lastly, having added enough Sugar of Milk to make the mixture weigh *one hundred* (100) *parts*, reduce it to a fine, uniform powder.

Preserve the powder in a well-stopped bottle.

ABSTRACTUM PODOPHYLLI.

ABSTRACT OF PODOPHYLLUM.

Podophyllum, in No. 60 powder, *two hundred parts*	200
Sugar of Milk, recently dried and in fine powder,	
Alcohol, each, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the Podophyllum with *eighty* (80) *parts* of Alcohol, and pack firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Podophyllum is exhausted. Reserve the first *one hundred and seventy* (170) *parts* of the percolate, distil off the Alcohol from the remainder, and mix the residue with the reserved portion. Place the mixture in an evaporating dish, and, having added *fifty* (50) *parts* of Sugar of Milk, cover it with a piece of thin muslin gauze, and set aside in a warm place, where the temperature will not rise above 50° C. (122° F.), until the mixture is dry. Lastly, having added enough Sugar of Milk to make the mixture weigh *one hundred* (100) *parts*, reduce it to a fine, uniform powder.

Preserve the powder in a well-stopped bottle.

ABSTRACTUM SENEGÆ.

ABSTRACT OF SENEGA.

Senega, in No. 60 powder, *two hundred parts*....................	200
Sugar of Milk, recently dried and in fine powder,	
Alcohol, each, *a sufficient quantity*,	
To make *one hundred parts*....	100

Moisten the Senega with *eighty* (80) *parts* of Alcohol, and pack firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Senega is exhausted. Reserve the first *one hundred and seventy* (170) *parts* of the percolate, evaporate the remainder to *thirty* (30) *parts*, at a temperature not exceeding 50° C. (122° F.), and mix with the reserved portion. Place the mixture in an evaporating dish, and, having added *fifty* (50) *parts* of Sugar of Milk, cover it with a piece of thin muslin gauze, and set aside in a warm place, where the temperature will not rise above 50° C. (122° F.), until the mixture is dry. Lastly, having added enough Sugar of Milk to make the mixture weigh *one hundred* (100) *parts*, reduce it to a fine, uniform powder.

Preserve the powder in a well-stopped bottle.

ABSTRACTUM VALERIANÆ.

ABSTRACT OF VALERIAN.

Valerian, in No. 60 powder, *two hundred parts*..................	200
Sugar of Milk, recently dried and in fine powder,	
Alcohol, each, *a sufficient quantity*,	
To make *one hundred parts*....	100

Moisten the Valerian with *eighty* (80) *parts* of Alcohol and pack firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Valerian is exhausted. Reserve the first *one hundred and seventy* (170) *parts* of the percolate, evaporate the remainder to *thirty* (30) *parts*, at a temperature not exceeding 50° C. (122° F.), and mix with the reserved portion. Place the mixture in an evaporating dish, and, having added *fifty* (50) *parts* of Sugar of

Milk, cover it with a piece of thin muslin gauze, and set aside in a warm place, where the temperature will not rise above 50° C. (122° F.), until the mixture is dry. Lastly, having added enough Sugar of Milk to make the mixture weigh *one hundred* (100) *parts*, reduce it to a fine, uniform powder.

Preserve the powder in a well-stopped bottle.

ACACIA.

ACACIA.

[Gum Arabic.]

A gummy exudation from *Acacia Verek* Guillemin et Perrottet, and from other species of *Acacia* (Nat. Ord., *Leguminosæ, Mimoseæ*).

In roundish tears of various sizes, or broken into angular fragments, with a glass-like, sometimes iridescent fracture, opaque from numerous fissures, but transparent and nearly colorless in thin pieces; nearly inodorous; taste insipid, mucilaginous; insoluble in alcohol, but soluble in water, forming a thick mucilaginous liquid.

The aqueous solution shows an acid reaction with test-paper, yields a gelatinous precipitate with solution of subacetate of lead, solution of ferric chloride, or concentrated solution of borate of sodium, and is not colored blue by test-solution of iodine.

Preparation: Mucilago Acaciæ.

ACETUM LOBELIÆ.

VINEGAR OF LOBELIA.

Lobelia, in No. 30 powder, *ten parts*	10
Diluted Acetic Acid, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *five* (5) *parts* of Diluted Acetic Acid, pack it firmly in a conical glass percolator, and gradually pour Diluted Acetic Acid upon it until *one hundred* (100) *parts* of filtered liquid are obtained.

ACETUM OPII.

VINEGAR OF OPIUM.

Powdered Opium, *ten parts*	10
Nutmeg, in No. 30 powder, *three parts*	3
Sugar, *twenty parts*	20
Diluted Acetic Acid, *a sufficient quantity,*	
To make *one hundred parts*	100

Macerate the Opium and Nutmeg in *fifty* (50) *parts* of Diluted Acetic Acid for twenty-four hours. Put the mixture into a conical glass percolator and return the percolate until it passes clear. Then gradually pour on Diluted Acetic Acid until *eighty* (80) *parts* of liquid are obtained. In this dissolve the Sugar by agitation, without heat, and strain.

ACETUM SANGUINARIÆ.

VINEGAR OF SANGUINARIA.

Sanguinaria, in No. 30 powder, *ten parts*	10
Diluted Acetic Acid, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the powder with *five* (5) *parts* of Diluted Acetic Acid, pack it firmly in a conical glass percolator, and gradually pour Diluted Acetic Acid upon it until *one hundred* (100) *parts* of filtered liquid are obtained.

ACETUM SCILLÆ.

VINEGAR OF SQUILL.

Squill, in No. 30 powder, *ten parts*	10
Diluted Acetic Acid, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the powder with *thirty* (30) *parts* of Diluted Acetic Acid, and, after the mixture has ceased to swell, transfer it to a conical glass percolator, pack it carefully, and gradually pour Diluted Acetic Acid upon it until *one hundred* (100) *parts* of filtered liquid are obtained.

Preparation: Syrupus Scillæ.

ACIDUM ACETICUM.

ACETIC ACID.

A liquid composed of 36 per cent. of absolute Acetic Acid [$HC_2H_3O_2$; 60. — $HO,C_4H_3O_3$; 60] and 64 per cent. of water.

A clear, colorless liquid, of a distinctly vinegar-like odor, a purely acid taste, and a strongly acid reaction. Sp. gr. 1.048 at 15° C. (59° F.). Miscible in all proportions with water and alcohol, and wholly volatilized by heat. Acetic Acid neutralized with water of ammonia, is colored deep red by ferric chloride, and decolorized again by strongly acidulating with sulphuric acid.

Acetic Acid should not yield a precipitate with hydrosulphuric acid (lead, copper, or tin), or when supersaturated with water of ammonia (iron), or with test-solution of oxalate of ammonium (calcium). When slightly supersaturated with water of ammonia, the liquid should not exhibit a blue tint (copper), nor should any residue be left on evaporating this alkaline liquid on the water-bath (other acids and fixed impurities). When supersaturated with solution of potassa, it should not have a smoky odor or taste, and, when diluted with 5 volumes of distilled water, the color caused by the addition of a few drops of test-solution of permanganate of potassium should not be sensibly changed by standing five minutes at the ordinary temperature (abs. of empyreumatic substances). Boiled with an equal volume of sulphuric acid, the liquid should not be darkened (organic impurities). On adding a crystal of ferrous sulphate to a cooled mixture of equal volumes of Acetic and sulphuric acids, no brown or reddish brown zone should make its appearance around the crystal (nitric acid). No precipitate should be formed on the addition of a few drops of test-solution of chloride of barium (sulphuric acid), nor by adding to another portion some test-solution of nitrate of silver (hydrochloric acid), nor, after the last-named addition, should the mixture turn dark on being warmed (sulphurous acid).

To neutralize 6.0 Gm. of Acetic Acid should require 36 C.c. of the volumetric solution of soda.

Preparation: Acidum Aceticum Dilutum.

ACIDUM ACETICUM DILUTUM.

DILUTED ACETIC ACID.

Acetic Acid, *seventeen parts*	17
Distilled Water, *eighty-three parts*	83
To make *one hundred parts*	100

Mix them.

Diluted Acetic Acid contains 6 per cent. of absolute Acetic Acid, and has the sp. gr. 1.0083. It corresponds, in properties, to Acetic Acid, and should respond to the same tests of purity.

To neutralize 24 Gm. of Diluted Acetic Acid should require 24 C.c. of the volumetric solution of soda.

ACIDUM ACETICUM GLACIALE.

GLACIAL ACETIC ACID.

$HC_2H_3O_2$; 60. — $HO,C_4H_3O_3$; 60.

Nearly or quite absolute Acetic Acid.

At or below 15° C. (59° F.) a crystalline solid; at higher temperatures a colorless liquid. When liquefied and as near as possible to 15° C. (59° F.) it has the sp. gr. 1.056–1.058. Its properties are similar to those of Acetic Acid, and it is similarly affected by reagents.

To neutralize 3 Gm. of Glacial Acetic Acid should require not less than 49.5 C.c. of the volumetric solution of soda (corresponding to at least 99 per cent. of absolute Acetic Acid).

ACIDUM ARSENIOSUM.

ARSENIOUS ACID.

As_2O_3 ; 197.8. — AsO_3 ; 98.9.

[ARSENIOUS OXIDE; WHITE ARSENIC.]

A heavy, white solid, occurring either as an opaque powder, or in transparent or semitransparent masses which usually have a striated appearance; permanent in the air, odorless and tasteless, and having a faintly acid reaction. Soluble in 30 to 80 parts of water at 15° C. (59° F.), the solubility varying with its physical condition.

It is slowly but completely soluble in 15 parts of boiling water. In alcohol it is but sparingly soluble. It is freely dissolved by hydrochloric acid, the alkalies and their carbonates, and is moderately soluble in glycerin. When heated to about 218° C. (424.4° F.) it is completely volatilized, without melting, and, when thrown on ignited charcoal, it emits an alliaceous odor. An aqueous solution of Arsenious Acid affords a lemon-yellow precipitate with test-solution of ammonio-nitrate of silver, and a grass-green one with test-solution of ammonio-sulphate of copper; and, if the solution is acidulated with hydrochloric acid, a bright yellow one with hydrosulphuric acid. This latter precipitate is soluble in test-solution of carbonate of ammonium and insoluble in diluted hydrochloric acid (distinction from sulphides of antimony and tin).

If 0.247 Gm. of Arsenious Acid be dissolved, with 2 Gm. of bicarbonate of sodium, in boiling water, the solution should decolorize not less than 48.5 C.c. of the volumetric solution of iodine (corresponding to at least 97 per cent. of pure Arsenious Acid).

Preparations: Liquor Acidi Arseniosi. Liquor Potassii Arsenitis.

ACIDUM BENZOICUM.

BENZOIC ACID.

$HC_7H_5O_2$; 122. — $HO,C_{14}H_5O_3$; 122.

White, lustrous scales, or friable needles, permanent in the air, having a slight, aromatic odor of benzoin, a warm, acid taste, and an acid reaction. Soluble in 500 parts of water and in 3 parts of alcohol at 15° C. (59° F.); in 15 parts of boiling water and in 1 part of boiling alcohol; also soluble in 3 parts of ether, in 7 parts of chloroform, and readily soluble in disulphide of carbon, benzol, benzin, and oils. When strongly heated, the Acid is completely volatilized. If gradually heated in a retort with 3 parts of freshly slaked lime, benzol is evolved. The Acid is freely soluble in solutions of potassa, soda, or ammonia. On carefully neutralizing any of these solutions and adding solution of ferric sulphate previously diluted with water, a flesh-colored precipitate is produced.

The solution of Benzoic Acid in pure, cold sulphuric acid, when gently warmed, should not turn darker than light brownish; if now poured into water, the Benzoic Acid should separate as a white precipitate and the liquid should be colorless. A small quantity of the Acid, when taken up by some recently ignited and moistened cupric oxide, held in the loop of a platinum wire and introduced into a non-luminous flame, should not impart a green or bluish-green color to the flame (abs. of chlorobenzoic acid). The Acid should not have an odor resembling that of bitter almonds or of stale urine; and, on rubbing together 1 Gm. of Benzoic Acid and 0.5 Gm. of permanganate of potassium in a mortar with a few drops of water, the odor of oil of bitter almonds should not be evolved (cinnamic acid).

ACIDUM BORICUM.

BORIC ACID.

H_3BO_3; 62. — $3HO,BO_3$; 62.

[BORACIC ACID.]

Transparent, colorless, six-sided plates, slightly unctuous to the touch, permanent in the air, odorless, having a cooling, bitterish taste, and a feebly acid reaction; in solution turning blue litmus paper red and turmeric paper brown, the tint, in the latter case, remaining unaltered in presence of free hydrochloric acid. Boric Acid is soluble in 25 parts of water and in 15 parts of alcohol at 15° C. (59° F.); in 3 parts of boiling water and in 5 parts of boiling alcohol. On ignition, Boric Acid loses 43.5 per cent. of its weight, and, on cooling, becomes transparent and brittle. The alcoholic solution burns with a flame tinged with green.

An aqueous solution of Boric Acid should not be precipitated by test-solutions of chloride of barium (sulphate), nitrate of silver with nitric acid (chloride), sulphide of ammonium (lead, copper, iron, etc.), or oxalate of ammonium (calcium). A fragment heated on a clean platinum wire in a non-luminous flame should not impart to the latter a persistent yellow color (sodium salt).

ACIDUM CARBOLICUM.

CARBOLIC ACID.

C_6H_5HO; 94. — $C_{12}H_6O_2$; 94.

[PHENOL.]

A product of the distillation of coal-tar between the temperatures of 180° and 190° C. (356° and 374° F.).

Colorless, interlaced, needle-shaped crystals, sometimes acquiring a pinkish tint, deliquescent on exposure, having a distinctive, slightly aromatic odor resembling creasote; when diluted, a sweetish taste with a slightly burning after-taste, and a neutral reaction. It produces a benumbing, blanching and caustic effect on the skin. Carbolic Acid is soluble in 20 parts of water at 15° C. (59° F.); 100 parts of the crystals are liquefied by the addition of about 5 parts of water; this liquid is rendered turbid by the further addition of water, until 2000 parts have been added, when a stable and clear solution is formed. It is very soluble in alcohol, ether, chloroform, benzol, disulphide of carbon, commercial and absolute glycerin, and fixed and volatile oils. The crystals melt at 36° to 42° C. (96.8° to 107.6° F.), and boil at 181° to 186° C. (357.8° to 366.8° F.), the higher melting and the lower boiling points being those of the pure and anhydrous Acid. On continued heating, the Acid is completely volatilized. Carbolic Acid coagulates albumen or collodion (difference from creasote). Its aqueous solution forms a white precipitate with bromine water. On adding to 10 C.c. of a 1 per cent. aqueous solution of Carbolic Acid, 1 drop of test-solution of ferric chloride, the liquid acquires a violet-blue color which is permanent (the color thus caused by creasote rapidly changing to greenish and brown, with formation, usually, of a brown precipitate). One volume of liquefied Carbolic Acid, containing 5 per cent. of water, forms, with 1 volume of glycerin, a clear mixture which is not rendered turbid by the addition of 3 volumes of water (abs. of creasote and cresylic acid).

The amount of water contained in a solution of Carbolic Acid may be determined by agitating the solution, in a graduated cylinder, with an equal volume of chloroform. After standing, the upper layer consists of the water contained in the mixture.

Preparation: Unguentum Acidi Carbolici.

ACIDUM CARBOLICUM CRUDUM.

CRUDE CARBOLIC ACID.

A liquid obtained during the distillation of coal-tar between the temperatures of 170° and 190° C. (338° and 374° F.), and containing Carbolic and Cresylic Acids in variable proportions, together with other substances.

A nearly colorless or reddish-brown liquid of a strongly empyreumatic and disagreeable odor; having a benumbing, blanching and caustic effect on the skin or mucous membrane, and a neutral reaction. Bromine water produces, in an aqueous solution of Carbolic or Cresylic Acid, a white flocculent precipitate. Crude Carbolic Acid should not dissolve in less than 15 parts of water at 15° C. (59° F.), nor should the solution have an alkaline reaction (abs. of alkalies).

If 50 volumes of Crude Carbolic Acid be diluted with warm water to measure

1,000 volumes, the mixture well shaken, cooled, and allowed to separate, the amount of undissolved impurities should not exceed 5 volumes, or 10 per cent. by volume of the Crude Acid.

The amount of water in a solution of Crude Carbolic Acid may be determined by agitating the solution, in a graduated cylinder, with an equal volume of chloroform. After standing, the upper layer consists of the water contained in the mixture.

ACIDUM CHROMICUM.

CHROMIC ACID.

CrO_3; 100.4. — CrO_3; 50.2.

Chromic Acid should be preserved in glass-stoppered vials.

Small, crimson, needle-shaped or columnar crystals, deliquescent, odorless, having a caustic effect upon the skin and other animal tissues, and an acid reaction. Very soluble in water, forming an orange-red solution. Brought in contact with alcohol, mutual decomposition takes place. When heated to about 190° C. (374° F.), Chromic Acid melts, and at 250° C. (482° F.), it is mostly decomposed with the formation of dark green chromic oxide and the evolution of oxygen. On contact, trituration, or warming with strong alcohol, glycerin, spirit of nitrous ether, or other easily oxidizable substances, it is liable to cause sudden combustion or explosion.

If 1 Gm. of Chromic Acid be dissolved in 100 C.c. of cold water and mixed with 10 C.c. of hydrochloric acid, the further addition of 1 C.c. of test-solution of chloride of barium should cause not more than a white turbidity (limit of sulphuric acid).

ACIDUM CITRICUM.

CITRIC ACID.

$H_3C_6H_5O_7.H_2O$; 210. — $3HO,C_{12}H_5O_{11}.2HO$; 210.

Colorless, right-rhombic prisms, not deliquescent except in moist air, efflorescent in warm air, odorless, having an agreeable, purely acid taste and an acid reaction. Soluble in 0.75 part of water and in 1 part of alcohol at 15° C. (59° F.); in 0.5 part of boiling water, in 0.5 part of boiling alcohol, and in 48 parts of ether. It is nearly insoluble in absolute ether, chloroform, benzol, and benzin. When heated to 100° C. (212° F.), the Acid melts and gradually loses 8.6 per cent. of its weight. At a higher temperature it emits inflammable vapors, chars, and is finally dissipated without leaving more than 0.05 per cent. of ash. On adding an aqueous solution of the Acid to an excess of lime-water, the mixture remains clear until boiled, when a white precipitate separates, which is nearly all redissolved on cooling.

If 1 part of the Acid be dissolved in 2 parts of water and treated with a solution of 1 part of acetate of potassium in 2 parts of water, the mixture should remain clear after the addition of an equal volume of alcohol (tartaric and oxalic acids). If 1 Gm. of Citric Acid be dissolved, without heat, in 10 C.c. of a cold, saturated solution of bichromate of potassium, no darkening of the liquid should be observed within five minutes (abs. of 1 per cent. or more of tartaric acid). An aqueous solution of the Acid should not be darkened nor be precipitated by hydrosulphuric acid (lead and copper). If the crystals have left, on ignition, some ash (see above), this ash should not turn blue by treatment with a few drops of water of ammonia (copper), nor should the further addition of one drop of test-solution of sulphide of ammonium cause any black coloration (lead, copper, and iron). 10 C.c. of a concentrated solution should show no precipitate within five minutes after the addition of 1 C.c. of test-solution of chloride of barium with excess of hydrochloric acid (sulphuric acid).

To neutralize 3.5 Gm. of Citric Acid should require 50 C.c. of the volumetric solution of soda.

Preparation: Syrupus Acidi Citrici.

ACIDUM GALLICUM.

GALLIC ACID.

$HC_7H_5O_5.H_2O$; 188. — $HO,C_{14}H_5O_9.2HO$; 188.

A nearly or quite colorless solid, crystallizing from water in long, silky needles or triclinic prisms, permanent in the air, odorless, having an astringent and slightly acidulous taste and an acid reaction. Soluble in 100 parts of water and in 4.5 parts of alcohol at 15° C. (59° F.); in 3 parts of boiling water and in 1 part of boiling alcohol; also soluble in 39 parts of absolute ether; less soluble in chloroform, benzol, and benzin. When dried at 100° C. (212° F.), the crystals lose 9.5 to 10 per cent. of combined water. At a low red heat they are completely volatilized. If 5 C.c. of a cold saturated solution of Gallic Acid be treated in a watch-glass with not more than 2 drops of solution of potassa, a deep green color will gradually be developed. This color is changed to purple-red by acids, and is prevented by an excess of alkaline hydrate or carbonate.

An aqueous solution of Gallic Acid should not precipitate alkaloids, gelatin, albumen, gelatinized starch, or solution of tartrate of antimony and potassium with chloride of ammonium (distinction from tannic acid).

Preparation: Unguentum Acidi Gallici.

ACIDUM HYDROBROMICUM DILUTUM.

DILUTED HYDROBROMIC ACID.

A liquid composed of 10 per cent. of absolute Hydrobromic Acid [HBr; 80.8. — HBr; 80.8], and 90 per cent. of Water.

Diluted Hydrobromic Acid should be preserved in glass-stoppered bottles.

A clear, colorless liquid, odorless, having a strongly acid taste and an acid reaction. Sp. gr. 1.077. By heat it is completely volatilized. On adding chlorine, or nitric acid to Diluted Hydrobromic Acid, bromine is liberated, which is soluble in chloroform or in disulphide of carbon, imparting to these liquids a yellow color. Test-solution of nitrate of silver causes a white precipitate, insoluble in nitric acid and in water of ammonia, and sparingly soluble in stronger water of ammonia.

On being kept for some time, the Acid should not become colored; test-solution of chloride of barium should not produce a turbidity or precipitate (sulphuric acid).

To neutralize 16.2 Gm. of Diluted Hydrobromic Acid should require 20 C.c. of the volumetric solution of soda.

ACIDUM HYDROCHLORICUM.

HYDROCHLORIC ACID.

[ACIDUM MURIATICUM, *Pharm.*, 1870.]

A liquid composed of 31.9 per cent. of absolute Hydrochloric Acid [HCl; 36.4 — HCl; 36.4] and 68.1 per cent. of Water.

Hydrochloric Acid should be preserved in glass-stoppered bottles.

A colorless, fuming liquid, of a pungent, suffocating odor, an intensely acid taste and a strongly acid reaction Sp. gr. 1.160. By heat it is completely volatilized. On heating it with black oxide of manganese, an abundance of chlorine gas is given off.

If 1 C.c. of the Acid be diluted with water to 10 C.c., and slightly supersaturated with water of ammonia, no precipitate should be formed on gently warming (iron or much lead), the liquid should not have a blue tint (copper), and the further addition of 2 drops of test-solution of sulphide of ammonium should not cause a black coloration (lead and iron). The remaining liquid should leave no fixed residue on evaporation and gentle ignition (non-volatile metals). When diluted with 5 volumes of water, it should not liberate iodine from test-solution of iodide of potassium (abs. of chlorine), nor should 10 C.c. of the diluted Acid be precipitated within five minutes after the addition of 20 drops of test-solution of chloride of barium (sulphuric acid). If another portion of the diluted Acid be treated with test-zinc, the evolved gas should not blacken paper wet with test-solution of nitrate of silver (sulphurous or arsenious acid).

To neutralize 3.64 Gm. of Hydrochloric Acid should require 31.9 C.c. of the volumetric solution of soda.

Preparations: Acidum Hydrochloricum Dilutum. Acidum Nitrohydrochloricum. Acidum Nitrohydrochloricum Dilutum.

ACIDUM HYDROCHLORICUM DILUTUM.

DILUTED HYDROCHLORIC ACID.

[ACIDUM MURIATICUM DILUTUM, *Pharm.*, 1870.]

Hydrochloric Acid, *six parts*	6
Distilled Water, *thirteen parts*	13

Mix the Acid with the Water, and preserve the product in glass-stoppered bottles.

Diluted Hydrochloric Acid contains 10 per cent of absolute Hydrochloric Acid. It has the sp. gr. 1.049, and should respond to the same reactions and tests as Hydrochloric Acid.

To neutralize 7.28 Gm. of Diluted Hydrochloric Acid should require 20 C.c. of the volumetric solution of soda.

ACIDUM HYDROCYANICUM DILUTUM.

DILUTED HYDROCYANIC ACID.

[PRUSSIC ACID.]

A liquid composed of 2 per cent. of absolute Hydrocyanic Acid [HCN; 27. — HC_2N; 27], and 98 per cent. of Alcohol and Water.

Ferrocyanide of Potassium, in coarse powder, *twenty parts*	20
Sulphuric Acid, *fifteen parts*	15
Diluted Alcohol, *sixty parts*	60
Water,	
Distilled Water, each, *a sufficient quantity.*	

Place the Ferrocyanide of Potassium in a tubulated retort, and add to it *forty* (40) *parts* of Water. Connect the neck of the retort (which is to be directed upward), by means of a bent tube, with a well-cooled condenser, the delivery-tube of which terminates in a receiver surrounded with ice-cold water, and containing *sixty* (60) *parts* of Diluted Alcohol. All the joints of the apparatus, except the neck of the receiver, having been made air-tight, pour into the retort, through the tubulure, the Sulphuric Acid previously diluted with an equal weight of Water. Agitate the retort gently and then heat it, in a sand-bath, until the contents are in brisk ebullition, and continue the heat regularly until there is but little liquid mixed with the saline mass remaining in the retort. Detach the receiver, and add to its contents so much Distilled Water as may be required to bring the product to the strength of *two* (2) *per cent.* of absolute Hydrocyanic Acid, if tested by the method of assay given in the note.

Diluted Hydrocyanic Acid may be prepared, extemporaneously, in the following manner:

Cyanide of Silver, *six parts*	6
Hydrochloric Acid, *five parts*	5
Distilled Water, *fifty-five parts*	55

Mix the Hydrochloric Acid with the Distilled Water, add the Cyanide of Silver, and shake the whole together in a glass-stoppered bottle. When the precipitate has subsided, pour off the clear liquid.

Diluted Hydrocyanic Acid should be preserved in small, glass-stoppered vials, in a cool and dark place.

A colorless liquid, of a characteristic odor and taste resembling those of bitter almonds, and having a slightly acid reaction. On being heated, it is completely volatilized. If to the Acid, rendered alkaline by potassa, a little ferrous sulphate and ferric chloride be added, and the mixture be acidulated with hydrochloric acid, a blue precipitate will make its appearance.

6.75 Gm. of Diluted Hydrocyanic Acid, diluted with 30 C.c. of water, and mixed with enough of an aqueous suspension of magnesia to make the mixture quite opaque, and afterward with a few drops of solution of chromate of potassium, should require 50 C.c. of the volumetric solution of nitrate of silver, before the red color caused by the latter ceases to disappear on stirring (corresponding to the presence of 2 per cent. of absolute Hydrocyanic Acid).

ACIDUM LACTICUM.

LACTIC ACID.

A liquid composed of 75 per cent. of absolute Lactic Acid [$HC_3H_5O_3$; 90. — $HO,C_6H_5O_5$; 90], and 25 per cent. of Water.

Lactic Acid should be preserved in glass-stoppered bottles.

A nearly colorless, syrupy liquid, odorless, having a very acid taste and an acid reaction. Sp. gr. 1.212. It is freely miscible with water, alcohol, and ether, but nearly insoluble in chloroform. It is not vaporized by a heat below 160 C.° (320°F.); at higher temperatures it emits inflammable vapors, then chars, and is finally entirely volatilized, or leaves but a trace of residue.

When diluted with water, Lactic Acid should afford no precipitate with test-solutions of nitrate of silver (hydrochloric acid), chloride of barium (sulphuric acid), sulphate of copper (sarcolactic acid), nor with sulphide of ammonium after addition of excess of water of ammonia (lead, iron). It should not reduce warm test-solution of potassio-cupric tartrate (sugars). When mixed and heated with excess of hydrated zinc oxide, and extracted with absolute alcohol, the latter should not leave a sweet residue on evaporation (glycerin). Cold, concentrated sulphuric acid shaken with an equal volume of Lactic Acid should assume at most only a pale yellow color (organic impurities).

To neutralize 4.5 Gm. of Lactic Acid should require 37.5 C.c. of the volumetric solution of soda.

Preparation: Syrupus Calcii Lactophosphatis.

ACIDUM NITRICUM.

NITRIC ACID.

A liquid composed of 69.4 per cent. of absolute Nitric Acid [HNO_3; 63. — HO,NO_5; 63], and 30.6 per cent. of Water.

Nitric Acid should be preserved in glass stoppered bottles.

A colorless, fuming, very caustic and corrosive liquid of a peculiar, somewhat suffocating odor, and a strongly acid reaction. Sp. gr. 1.420. By heat it is completely volatilized. It dissolves copper with evolution of red vapors, and stains woolen fabrics and animal tissues a bright yellow.

If 1 C.c. of Nitric Acid be treated with a slight excess of water of ammonia, no precipitate should be formed (abs. of iron or much lead), the liquid should not have a blue tint (copper), and the further addition of 2 drops of test-solution of sulphide of ammonium should not cause a black precipitate (lead and iron). The remaining liquid should leave no fixed residue on evaporation and gentle ignition (non-volatile metals). If 1 part of Nitric Acid be neutralized with solution of potassa, 2 parts of potassa then added and the mixture boiled with test-zinc, a gas is evolved which should not blacken paper wet with test-solution of nitrate of silver (arsenic acid). A portion diluted with 5 volumes of water should afford no precipitate with test-solution of chloride of barium (sulphuric acid), or with test-solution of nitrate of silver (hydrochloric acid). If 5 C.c. of Nitric Acid are diluted with an equal volume of water, no blue color should be produced by the addition of a few drops of gelatinized starch (free iodine), nor should the further addition, without agitation, of a layer of solution of hydrosulphuric acid cause a blue zone at the line of contact of the two liquids (iodic acid).

To neutralize 3.15 Gm. of Nitric Acid should require 34.7 C.c. of the volumetric solution of soda.

Preparations: Acidum Nitricum Dilutum. Acidum Nitrohydrochloricum. Acidum Nitrohydrochloricum Dilutum.

ACIDUM NITRICUM DILUTUM.

DILUTED NITRIC ACID.

Nitric Acid, *one part*	1
Distilled Water, *six parts*	6

Mix the Acid with the Water, and preserve the product in glass-stoppered bottles.

Diluted Nitric Acid contains 10 per cent. of absolute Nitric Acid. It has the sp. gr. 1.059, and should respond to the same tests as Nitric Acid.

To neutralize 12.6 Gm. of Diluted Nitric Acid should require 20 C.c. of the volumetric solution of soda.

ACIDUM NITROHYDROCHLORICUM.

NITROHYDROCHLORIC ACID.

[ACIDUM NITROMURIATICUM, *Pharm.*, 1870.]

Nitric Acid, *four parts*	4
Hydrochloric Acid, *fifteen parts*	15

Mix the Acids in a capacious, open, glass vessel, and, when effervescence has ceased, pour the product into glass-stoppered bottles, which should not be more than half filled, and keep them in a cool place.

A golden-yellow, fuming and very corrosive liquid, having a strong odor of chlorine and a strongly acid reaction. By heat it is wholly volatilized. It readily dissolves gold leaf, and a drop, added to test-solution of iodide of potassium, liberates iodine abundantly.

ACIDUM NITROHYDROCHLORICUM DILUTUM.

DILUTED NITROHYDROCHLORIC ACID.

[ACIDUM NITROMURIATICUM DILUTUM, *Pharm.*, 1870.]

Nitric Acid, *four parts*	4
Hydrochloric Acid, *fifteen parts*	15
Distilled Water, *seventy-six parts*	76

Mix the Acids in a capacious, open, glass vessel, and, when effervescence has ceased, add the Distilled Water.

Keep the product in glass-stoppered bottles, in a cool place.

A colorless or faintly yellow liquid, odorless, or having a faint odor of chlorine, and a very acid taste and reaction. By heat it is wholly volatilized. On adding a few drops to test-solution of iodide of potassium, iodine is liberated.

ACIDUM OLEICUM.

OLEIC ACID.

$HC_{18}H_{33}O_2$; 282. — $HO,C_{36}H_{33}O_3$; 282.

A yellowish, oily liquid, gradually becoming brown, rancid and acid, when exposed to the air; odorless or nearly so, tasteless, and, when pure, of a neutral reaction. Sp. gr. 0.800 to 0.810. Oleic Acid is insoluble in water, but completely soluble in alcohol, chloroform, benzol, benzin, oil of turpentine, and the fixed oils. At 14° C. (57.2° F.), it becomes semi-solid, and remains so until cooled to 4° C. (39.2° F.), at which temperature it becomes a whitish mass of crystals. At a gentle heat, the Acid is completely saponified by carbonate of potassium. If the resulting soap be dissolved in water and exactly neutralized with acetic acid, the liquid will form a white precipitate with test-solution of acetate of lead. This precipitate, after being twice washed with boiling water, should be almost entirely soluble in ether (abs. of more than traces of palmitic and stearic acids). Equal volumes of the Acid and of alcohol, heated to 25° C. (77° F.) should give a clear solution, without separating oily drops upon the surface (fixed oils).

ACIDUM PHOSPHORICUM.

PHOSPHORIC ACID.

A liquid composed of 50 per cent. of Orthophosphoric Acid [H_3PO_4; 98. — $3HO,PO_5$; 98], and 50 per cent. of Water.

Phosphorus, *sixteen parts*	16
Nitric Acid,	
Distilled Water, each, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix *one hundred* (100) *parts* of Nitric Acid with *one hundred* (100) *parts* of Distilled Water, in a glass retort having the capacity of *four hundred* (400) *parts*. Having placed the retort upon a sand-bath or wire-gauze support, connect it loosely with a well-cooled receiver and add to the acid in the retort the Phosphorus, previously cut into fine pieces. Insert a funnel through the tubulure of the retort, and then gradually apply heat until the reaction is seen to commence. Regulate the heat carefully so as to prevent the reaction from becoming too violent, or, if necessary, check it by the addition of a little Distilled Water through the funnel. From time to time return the acid liquid, which collects in the receiver, into the retort, until all the Phosphorus is dissolved. Then transfer the liquid to a weighed porcelain capsule and continue the heat, at a temperature not exceeding 190° C. (374° F.), until the excess of Nitric Acid is driven off, and an odorless, syrupy liquid remains. Cool the dish and contents, and add enough Distilled Water to make the liquid weigh *one hundred* (100) *parts*.

Test small portions for Nitric, Phosphorous, and Arsenic Acids by the methods indicated in the note.

If Nitric Acid be present, evaporate the liquid until no reaction for Nitric Acid can be obtained. Then cool the Acid and add enough Distilled Water to make the product weigh *one hundred* (100) *parts*.

If Phosphorous Acid be present, add to the liquid a mixture of *six* (6) *parts* of Nitric Acid and *six* (6) *parts* of Distilled Water, and again evaporate until no reaction for Phosphorous or Nitric Acids can be obtained. Then, having cooled the Acid, add enough Distilled Water to make the product weigh *one hundred* (100) *parts*.

If Arsenic Acid be present, dilute the Acid with *one hundred and fifty* (150) *parts* of Distilled Water, heat to about 70° C. (158° F.) and pass through the liquid a stream of hydrosulphuric acid gas for half an hour, then remove the heat and continue passing the gas until the liquid is cold. Close the vessel tightly, set it aside for 24 hours, filter the liquid, heat it until all odor of the gas has been driven off, again filter and evaporate until the residue weighs *one hundred* (100) *parts.*

Preserve the product in glass-stoppered bottles.

A colorless liquid, without odor, of a strongly acid taste and reaction. Sp. gr. 1.347. When heated, the liquid loses water, and when a temperature of about 200° C. (392° F.) has been reached, the Acid is gradually converted into pyrophosphoric and metaphosphoric acids, which may be volatilized at a red heat. If the diluted Acid be supersaturated with ammonia, addition of test-mixture of magnesium produces a white, crystalline precipitate. If this precipitate be dissolved in diluted acetic acid, the solution yields a yellow precipitate with test-solution of nitrate of silver.

Phosphoric Acid, diluted with 5 volumes of water, and gently warmed, should not be blackened by test-solution of nitrate of silver, nor be turned white or whitish by test-solution of mercuric chloride (abs. of phosphorous acid); when heated to about 70° C. (158° F.), thoroughly saturated during half an hour, and afterward until it is cold, with hydrosulphuric acid gas, then set aside for twenty-four hours, it should not deposit a lemon-yellow sediment (abs. of arsenic acid). If a crystal of ferrous sulphate be dropped into a cooled mixture of Phosphoric and Sulphuric Acids, no brown or reddish zone should make its appearance around the crystal (abs. of nitric acid). After diluting the Acid with 5 volumes of distilled water, no precipitate should be produced on the addition of small portions of test-solution of chloride of barium (sulphuric acid), or of nitrate of silver (hydrochloric acid); nor should any precipitate be formed, after several hours, by the addition of an equal volume of tincture of chloride of iron (pyrophosphoric and metaphosphoric acids).

On pouring 5 Gm. of Phosphoric Acid upon 10 Gm. of oxide of lead free from carbonate of lead and from moisture, evaporating and igniting, a residue will be obtained which should weigh 11.81 Gm.

Preparation: Acidum Phosphoricum Dilutum.

ACIDUM PHOSPHORICUM DILUTUM.

DILUTED PHOSPHORIC ACID.

Phosphoric Acid, *twenty parts*	20
Distilled Water, *eighty parts*	80
To make *one hundred parts*	100

Mix the Phosphoric Acid with the Distilled Water.

Diluted Phosphoric Acid has the sp. gr. 1.057, and contains 10 per cent. of Orthophosphoric Acid. It should respond to the tests of purity required for Phosphoric Acid.

On pouring 5 Gm. of Diluted Phosphoric Acid upon 5 Gm. of oxide of lead free from carbonate of lead and from moisture, evaporating and igniting, a residue will be obtained which should weigh 5.36 Gm.

ACIDUM SALICYLICUM.

SALICYLIC ACID.

$HC_7H_5O_3$; 138. — $HO,C_{14}H_5O_5$; 138.

Fine, white, light, prismatic, needle-shaped crystals, permanent in the air, free from odor of carbolic acid, but sometimes having a slight, aromatic odor, of a sweetish and slightly acrid taste and an acid reaction. Soluble in 450 parts of water and in 2.5 parts of alcohol at 15° C. (59° F.); in 14 parts of boiling water; very soluble in boiling alcohol; also soluble in 2 parts of ether, in 2 parts of absolute alcohol, in 3.5 parts of amylic alcohol, and in 80 parts of chloroform. When heated to about 175° C. (347° F.) the crystals melt, and at about 200° C. (392° F.) they begin to sublime; at a higher temperature they are volatilized and decomposed with odor of carbolic acid. The aqueous solution is colored intensely violet-red by test-solution of ferric chloride.

A solution of 1 part of Salicylic Acid in 10 parts of alcohol, mixed with a few drops of nitric acid, should not become turbid upon the addition of a few drops of test-solution of nitrate of silver (abs. of hydrochloric acid). A saturated solution in absolute alcohol, when allowed to evaporate spontaneously in an atmosphere free from dust, should leave a perfectly white crystalline residue, without a trace of color at the points of the crystals (abs. of organic impurities; also of iron). On agitating a portion of Salicylic Acid with 15 parts of concentrated sulphuric acid, no color should be imparted to the latter within fifteen minutes (foreign organic matter). If 5 C.c. of a saturated aqueous solution of Salicylic Acid be poured into a test-tube, into which had been introduced, shortly before, a crystal of chlorate of potassium and 2 C.c. of hydrochloric acid, and some water of ammonia be now carefully poured on top, the latter should not assume a reddish or brownish tint (abs. of carbolic acid).

ACIDUM SULPHURICUM.

SULPHURIC ACID.

A liquid composed of not less than 96 per cent. of absolute Sulphuric Acid [H_2SO_4; 98. — HO,SO_3; 49], and not more than 4 per cent. of Water. Sulphuric Acid should be preserved in glass-stoppered bottles.

A colorless liquid, of an oily appearance, inodorous, strongly caustic and corrosive, and having a strongly acid reaction. Its sp. gr. should not be below 1.840. It is miscible, in all proportions, with water and alcohol, with evolution of heat. When heated on platinum foil, it is vaporized without leaving a residue. If the Acid be warmed with sugar, it blackens the latter; if diluted with 5 volumes of water, the liquid yields, with test-solution of chloride of barium, a white precipitate insoluble in hydrochloric acid.

On pouring the Acid into 4 volumes of alcohol, no precipitate should be formed (lead). If there be carefully poured upon it, in a test-tube, a layer of freshly prepared test-solution of ferrous sulphate, no brownish or reddish zone should appear at the line of contact of the two liquids (nitric acid). When diluted with 10 volumes of water, no precipitate should be formed by the addition of an aqueous solution of sulphate of silver (hydrochloric acid), nor by hydrosulphuric acid (lead, arsenic, copper), nor by excess of water of ammonia (iron); nor should this liquid, containing excess of ammonia, leave any fixed residue on evaporation and gentle ignition (non-volatile metals). When considerably diluted and treated with test-zinc, it evolves a gas which should not blacken paper moistened with test-solution of nitrate of silver (arsenious or sulphurous acid).

To neutralize 2.45 Gm. of Sulphuric Acid, diluted with about 10 volumes of water, should require not less than 48 C.c. of the volumetric solution of soda.

Preparations: Acidum Sulphuricum Aromaticum. Acidum Sulphuricum Dilutum.

ACIDUM SULPHURICUM AROMATICUM.

AROMATIC SULPHURIC ACID.

Sulphuric Acid, *two hundred parts*	200
Tincture of Ginger, *forty-five parts*	45
Oil of Cinnamon, *one part*	1
Alcohol, *a sufficient quantity,*	
To make *one thousand parts*	1000

Add the Sulphuric Acid gradually to *seven hundred* (700) *parts* of Alcohol and allow the mixture to cool. Then add to it the Tincture of Ginger and the Oil of Cinnamon, and afterward enough Alcohol to make the product weigh *one thousand* (1000) *parts.*

Aromatic Sulphuric Acid should be preserved in glass-stoppered bottles.

Aromatic Sulphuric Acid has the sp. gr. 0.955, and contains about 20 per cent. of officinal Sulphuric Acid, partly in form of ethylsulphuric acid.

On diluting 9.8 Gm. of Aromatic Sulphuric Acid with 20 volumes of water, and filtering, the filtrate (with washings) should require, for complete neutralization, not less than 36 C.c. of the volumetric solution of soda.

ACIDUM SULPHURICUM DILUTUM.

DILUTED SULPHURIC ACID.

Sulphuric Acid, *one part*	1
Distilled Water, *nine parts*	9

Pour the Acid gradually, with constant stirring, into the Distilled Water, and preserve the product in glass-stoppered bottles.

Diluted Sulphuric Acid contains 10 per cent. of officinal Sulphuric Acid, and has the sp. gr. 1.067 (nearly). It should respond to the same reactions and tests as Sulphuric Acid.

To neutralize 9.8 Gm. of Diluted Sulphuric Acid should require 19.2 to 20 C.c. of the volumetric solution of soda.

ACIDUM SULPHUROSUM.

SULPHUROUS ACID.

A liquid composed of about 3.5 per cent. of Sulphurous Acid Gas [SO_2 ; 64. — SO_2 ; 32], and about 96.5 per cent. of Water.

Sulphuric Acid, *fourteen parts*	14
Charcoal, in coarse powder, *two parts*	2
Distilled Water, *one hundred parts*	100

Pour the Acid upon the Charcoal previously introduced into a glass flask, and mix the two well together. By means of a glass tube and well-fitting corks, connect the flask with a wash-bottle, which is one-third filled with water, and fitted with a cork having three perforations. Into one of these perforations insert a safety-tube, which should reach nearly to the bottom of the bottle; into the remaining perforation fit a glass tube and connect it with a bottle which is about three-fourths filled by the Distilled Water. This tube should dip about an inch below the surface of the water. By means of a second tube connect this bottle with another bottle containing a dilute solution of carbonate of sodium, to absorb any gas which may not be retained by the Distilled Water. Having ascertained that all the connections are air-tight, apply a moderate heat to the flask until the evolution of gas has nearly ceased, and, during the passage of the gas, keep the bottle containing the Distilled Water at or below 10° C. (50° F.) by surrounding it with cold water or ice.

Finally, pour the Sulphurous Acid into glass-stoppered, dark amber-colored bottles, and keep them in a cool and dark place.

A colorless liquid, of the characteristic odor of burning sulphur, a very acid, sulphurous taste, and a strongly acid reaction. Sp. gr. 1.022–1.023. By heat it is completely volatilized. Litmus paper brought in contact with the Acid is at first turned red, and afterward bleached. On pouring a few drops of the Acid into a test-tube containing diluted hydrochloric acid and some test-zinc, a gas is evolved which blackens paper wet with solution of acetate of lead.

If to 10 C.c. of Sulphurous Acid there be added 1 C.c. of diluted hydrochloric acid, followed by 1 C.c. of test-solution of chloride of barium, not more than a very slight turbidity should be produced (limit of sulphuric acid).

If 1.28 Gm. of Sulphurous Acid be diluted with 20 volumes of water and a little gelatinized starch be added, at least 14 C.c. of the volumetric solution of iodine should be required, before a permanent blue tint is developed.

ACIDUM TANNICUM.

TANNIC ACID.

$C_{14}H_{10}O_9$ (chiefly); 322. — $\mathit{C_{28}H_{10}O_{18}}$; 322.

Light-yellowish scales, permanent in the air, having a faint, peculiar odor, a strongly astringent taste and an acid reaction. Soluble in 6 parts of water and in 0.6 part of alcohol at 15° C. (59° F.); very soluble in boiling water and in boiling alcohol; also soluble in 6 parts of glycerin; sparingly soluble in absolute alcohol, freely in diluted alcohol; moderately in washed ether; and almost insoluble in absolute ether, chloroform, benzol, and benzin. When heated on platinum foil, it is completely volatilized. With solution of ferric chloride, Tannic Acid forms a bluish-black ink. In aqueous solution it causes precipitates with alkaloids, gelatin, albumen, gelatinized starch, and solution of tartrate of antimony and potassium (distinction from gallic acid).

Preparations: Collodium Stypticum. Trochisci Acidi Tannici. Unguentum Acidi Tannici.

ACIDUM TARTARICUM.

TARTARIC ACID.

$H_2C_4H_4O_6$; 150. — $2HO,C_8H_4O_{10}$; 150.

Nearly or entirely colorless, transparent, monoclinic prisms, permanent in the air, odorless, having a purely acid taste and an acid reaction. Soluble in 0.7 part of water and in 2.5 parts of alcohol at 15° C. (59° F.); in 0.5 part of boiling water and in 0.2 part of boiling alcohol; also soluble in 36 parts of absolute alcohol, in 23 parts of ether, and in 250 parts of absolute ether, and nearly insoluble in chloroform, benzol, and benzin. When heated for two hours at 100° C. (212° F.), the crystals do not lose more than a trace in weight. On ignition they should not leave more than 0.05 per cent. of ash. An aqueous solution of 1 part of Tartaric Acid in 3 parts of cold water, when mixed with a solution of 1 part of acetate of potassium in 3 parts of cold water, followed by the addition of a volume of alcohol equal to the whole mixture, yields a white, crystalline precipitate. If, after standing two hours at the ordinary temperature, the liquid is separated by filtration and the precipitate well washed with diluted alcohol and dried at 100° C. (212° F.) in an air-bath, it should weigh between 1.25 and 1.26 parts.

A concentrated aqueous solution should not be blackened, at the line of contact, by the careful addition of test-solution of hydrosulphuric acid (lead and copper). If the crystals have left, on ignition, some ash (see above), this ash should not turn blue by treatment with a few drops of water of ammonia (copper), nor should the further addition of one drop of test-solution of sulphide of ammonium cause any black coloration (lead, copper, iron). 10 C.c. of a concentrated solution should show no precipitate within five minutes after the addition of 1 C.c. of test-solution of chloride of barium with an excess of hydrochloric acid (sulphuric acid).

To neutralize 3.75 Gm. of Tartaric Acid should require 50 C.c. of the volumetric solution of soda.

ACONITUM.

ACONITE.

The tuberous root of *Aconitum Napellus* Linné (Nat. Ord., *Ranunculaceæ*).

From one-half to three-quarters of an inch (12 to 20 millimeters) thick at the crown; conically contracted below; from two to three inches (50 to 75 millimeters) long, with scars or fragments of radicles; dark-brown externally; whitish internally; with a rather thick bark, enclosing a star-shaped pith, about seven-rayed; without odor; taste at first sweetish, soon becoming acrid, and producing a sensation of tingling and numbness.

Preparations: Abstractum Aconiti. Extractum Aconiti. Extractum Aconiti Fluidum. Tinctura Aconiti.

ADEPS.

LARD.

The prepared, internal fat of the abdomen of *Sus scrofa* Linné (Class, *Mammalia*; Ord., *Pachydermata*), purified by washing with water, melting and straining.

Lard should be preserved in securely closed vessels impervious to fat.

A soft, white, unctuous solid, of a faint odor free from rancidity, having a bland taste, and a neutral reaction. Entirely soluble in ether, benzin, and disulphide of carbon. Sp. gr. about 0.938. It melts at or near 35° C. (95° F.) to a clear, colorless liquid, and at or below 30° C. (86 F.) it is a soft solid.

Distilled water, boiled with Lard, should not acquire an alkaline reaction (abs. of alkalies), nor should another portion be colored blue by solution of iodine (abs. of starch). A portion of the water, when filtered, acidulated with nitric acid, and treated with test-solution of nitrate of silver, should not yield a white precipitate soluble in ammonia (abs. of common salt). When heated for several hours on the water-bath, under frequent stirring, Lard should not diminish sensibly in weight (abs. of water).

Preparations: Adeps Benzoinatus. Ceratum. Ceratum Resinæ. Unguentum.

ADEPS BENZOINATUS.

BENZOINATED LARD.

[UNGUENTUM BENZOINI, *Pharm.*, 1870.]

Benzoin, in coarse powder, *two parts*	2
Lard, *one hundred parts*	100
To make *one hundred parts*	100

Melt the Lard by means of a water-bath, and, having loosely tied the Benzoin in a piece of coarse muslin, suspend it in the melted Lard, and, stirring them together frequently, continue the heat for two hours, covering the vessel and not allowing the temperature to rise above 60° C. (140° F.). Lastly, having removed the Benzoin, strain the Lard and stir while cooling.

ÆTHER.

ETHER.

A liquid composed of about 74 per cent. of Ethyl Oxide [$(C_2H_5)_2O$; 74. — C_4H_5O; 37] and about 26 per cent. of Alcohol containing a little Water. Sp. gr. about 0.750 at 15° C. (59° F.).

Ether should be preserved in well-stopped bottles or in soldered tins, in a cool place, remote from lights and fire.

The properties of Ether are given under Stronger Ether (see *Æther Fortior*). It dissolves in about 5 times its volume of water.

Tested, as directed under Stronger Ether, the reaction should be neutral; on evaporation it should leave no fixed residue, and the last portion should have not more than a very slight foreign odor; a volume of 10 C.c., upon agitation with an equal volume of glycerin, should not be reduced to less than 7.5 C.c.

ÆTHER ACETICUS.

ACETIC ETHER.

$C_2H_5C_2H_3O_2$; 88. — $C_4H_5O,C_4H_3O_3$; 88.

[ACETATE OF ETHYL.]

Acetic Ether should be preserved in well-stopped bottles, remote from lights and fire.

A transparent and colorless liquid, of a strong, fragrant, ethereal, and somewhat acetous odor, a refreshing taste, and neutral reaction. Soluble, in all proportions, in alcohol, ether, and chloroform, and in about 17 parts of water. Sp. gr. 0.889 to 0.897. It boils at about 76° C. (168.8° F.). It is inflammable, burning with a bluish-yellow flame and acetous odor.

Acetic Ether should not change the color of blue litmus paper previously moistened with water, nor leave any fixed residue upon evaporation. When 10 C.c. are agitated with an equal volume of water, in a graduated test-tube, the upper, ethereal layer, after its separation, should not measure less than 9 C.c.

Preparations: Spiritus Odoratus. Tinctura Ferri Acetatis.

ÆTHER FORTIOR.

STRONGER ETHER.

A liquid composed of about 94 per cent. of Ethyl Oxide [$(C_2H_5)_2O$; 74. — C_4H_5O; 37] and about 6 per cent. of Alcohol containing a little Water. Sp. gr. not higher than 0.725 at 15° C. (59° F.), or 0.716 at 25° C. (77° F.).

Stronger Ether should be preserved in well-stopped bottles or in soldered tins, in a cool place, remote from lights and fire.

A thin and very diffusive, clear, and colorless liquid, of a refreshing, characteristic odor, a burning and sweetish taste, with a slightly bitter after-taste, and a neutral reaction. It is soluble, in all proportions, in alcohol, chloroform, benzol, benzin, fixed, and volatile oils, and dissolves in 8 times its volume of water at 15° C. (59° F.). It boils at 37° C. (98.6° F.). Ether is highly inflammable, and its vapor, when mixed with air and ignited, explodes violently.

If a piece of pale blue litmus paper moistened with water be immersed ten minutes in a portion of the Ether, the color should not change. On evaporating at least 50 C.c. in a glass vessel, no fixed residue should appear, and, on evaporating a portion dropped upon blotting paper, no foreign odor should be developed. When 10 C.c. are agitated with an equal volume of glycerin in a graduated test-tube, the Ether layer, when fully separated, should not measure less than 8.6 C.c. It should boil actively, in a test-tube half filled with it and held a short time in the hand, on the addition of small pieces of broken glass.

Preparations: Spiritus Ætheris. Spiritus Ætheris Compositus.

ALCOHOL.

ALCOHOL.

A liquid composed of 91 per cent. by weight (94 per cent. by volume) of Ethyl Alcohol [C_2H_5,HO; 46. — C_4H_5O,HO; 46], and 9 per cent. by weight (6 per cent. by volume) of Water. Sp. gr. 0.820 at 15.6° C. (60° F.) and 0.812 at 25° C. (77° F.).

Alcohol should be preserved in well-closed vessels, in a cool place, remote from lights and fire.

A transparent, colorless, mobile and volatile liquid, of a characteristic, pungent and agreeable odor, and a burning taste. It should not change the color of blue or red litmus paper, previously moistened with water. It boils at 78° C. (172.4° F.), and is readily inflammable, giving a blue flame without smoke.

If a portion of at least 50 C.c. be evaporated to dryness in a glass vessel, no residue or color should appear. If mixed with its own volume of water, and one-fifth its volume of glycerin, a piece of blotting paper, on being wet with the mixture, after the vapor of Alcohol has wholly disappeared, should give no irritating or foreign odor (fusel oil). And if a portion be evaporated to one-fifth its volume, the residue should not turn reddish upon the addition of an equal volume of sulphuric acid (amyl alcohol). When treated, in a test-tube, with an equal volume of solution of potassa, there should not be an immediate darkening of the liquid (methyl alcohol, aldehyde, and oak tannin). If a portion of about 150 C.c. be digested for an hour with 20 Gm. of carbonate of lead, and filtered, the filtrate then distilled from a water-bath, and the first 20 C.c. of the distillate treated with 1 C.c. of test-solution of permanganate of potassium, the color should not disappear within one or two minutes (abs. of methyl alcohol). If 20 C.c. are shaken in a glass-stoppered vial, previously well rinsed with the same Alcohol, with 2 C.c. of test-solution of nitrate of silver, the mixture should not be rendered more than faintly opalescent during one day's exposure to direct sunlight (abs. of more than traces of foreign organic matters, fusel oil, etc.).

Preparation: Alcohol Dilutum.

ALCOHOL DILUTUM.

DILUTED ALCOHOL.

A liquid composed of 45.5 per cent. by weight (53 per cent. by volume) of Ethyl Alcohol, and 54.5 per cent. by weight (47 per cent. by volume) of Water. Sp. gr. 0.928 at 15.6° C. (60° F.), and 0.920 at 25° C. (77° F.).

Alcohol, *fifty parts*	50
Distilled Water, *fifty parts*	50
To make *one hundred parts*	100

Diluted Alcohol of this strength may be prepared from Alcohol of any higher percentage by the following rule, in which all terms denote weight:

Divide the alcoholic percentage of the Alcohol to be diluted, by 45.5 and subtract 1 from the quotient. This gives the number of parts of Water to be added to *one* (1) *part* of the Alcohol.

Diluted Alcohol should respond to the tests of purity given under *Alcohol.*

ALLIUM.

GARLIC.

The bulb of *Allium sativum* Linné (Nat. Ord., *Liliaceæ*).

Bulb subglobular, compound, consisting of about eight compressed, wedge-shaped bulblets, which are arranged in a circle around the base of the stem, and covered by several dry, membranaceous scales. It has a pungent, disagreeable odor, and a warm, acrid taste. It should be preserved in a dry place, and used only in the fresh state.

Preparation: Syrupus Allii.

ALOE.

ALOES.

[ALOE SOCOTRINA, *Pharm.*, 1870.]

The inspissated juice of the leaves of *Aloe socotrina* Lamarck (Nat. Ord., *Liliaceæ*).

In hard masses, occasionally soft in the interior, opaque, yellowish-brown or orange-brown, not greenish, translucent on the edges; fracture resinous, somewhat conchoidal; when breathed upon, it emits a fragrant, saffron-like odor; taste strongly bitter. It is almost entirely soluble in alcohol and in 4 times its weight of boiling water. Mixed with alcohol and examined under the microscope, it exhibits numerous crystals.

Preparations: Aloe Purificata. Extractum Aloes Aquosum.

ALOE PURIFICATA.

PURIFIED ALOES.

Aloes, *one hundred parts*	100
Alcohol, *fifteen parts*	15

Heat the Aloes, by means of a water-bath, until it is completely melted. Then add the Alcohol, and, having stirred the mixture thoroughly, strain it through a fine sieve, which has just been dipped into boiling water. Evaporate the strained mixture by means of a water-bath, constantly stirring, until a thread of the mass becomes brittle on cooling. Lastly, break the product, when cold, into pieces of a convenient size, and keep it in well-stopped bottles.

Purified Aloes is in irregular, brittle pieces of a dull brown or reddish-brown color, and having the peculiar, aromatic odor of Socotrine Aloes. It is almost entirely soluble in alcohol.

Preparations: Pilulæ Aloes. Pilulæ Aloes et Asafœtidæ. Pilulæ Aloes et Ferri. Pilulæ Aloes et Mastiches. Pilulæ Aloes et Myrrhæ. Tinctura Aloes. Tinctura Aloes et Myrrhæ. Vinum Aloes.

ALTHÆA.

ALTHÆA.

[MARSHMALLOW.]

The root of *Althæa officinalis* Linné (Nat. Ord., *Malvaceæ*).

In cylindrical or somewhat conical pieces, from three to six inches (7 to 15 centimeters) long, about half an inch (12 millimeters) in diameter, deeply wrinkled; deprived of the brown, corky layer and small radicles; externally white, marked with a number of circular spots, and of a somewhat hairy appearance from the loosened bast-fibres; internally whitish and fleshy. It breaks with a short, granular and mealy fracture, has a faint, aromatic odor, and a sweetish, mucilaginous taste.

Preparations: Syrupus Althææ.

ALUMEN.

ALUM.

$K_2Al_2(SO_4)_4.24H_2O$; 948. — $KO,SO_3.Al_2O_3,3SO_3.24HO$; 474.

[Aluminii et Potassii Sulphas, *Pharm.*, 1870. Potassa Alum.]

Large, colorless, octahedral crystals, sometimes modified by cubes, acquiring a whitish coating on exposure to air, odorless, having a sweetish, astringent taste, and an acid reaction. Soluble in 10.5 parts of water at 15° C. (59° F.), and in 0.3 part of boiling water; insoluble in alcohol. When gradually heated, the salt loses water; at 92° C. (197.6° F.) it melts, and if the heat be gradually increased to 200° C. (392° F.), it loses 45.57 per cent. of its weight (water of crystallization), leaving a bulky, white residue. The aqueous solution of the salt dissolves zinc and iron with evolution of hydrogen. Water of ammonia produces a bulky, white precipitate, which is nearly insoluble in an excess of ammonia.

With solution of potassa or of soda, Alum yields a white precipitate which is completely soluble in an excess of the alkali, no odor of ammonia being evolved (difference from, and absence of ammonia-alum). The clear alkaline solution should yield no precipitate with test-solution of sulphide of ammonium (zinc or lead). A solution of 1 Gm. of Alum in 30 C.c. of water should not assume more than a bluish coloration on the addition of a drop of test-solution of ferrocyanide of potassium (limit of iron).

Preparation: Alumen Exsiccatum.

ALUMEN EXSICCATUM.

DRIED ALUM.

$K_2Al_2(SO_4)_4$; 516. — $KO,SO_3.Al_2O_3,3SO_3$; 258.

Alum, in small pieces, *one hundred and eighty-four parts* 184

To make *one hundred parts* 100

Expose the Alum for several days to a temperature of about 80° C. (176° F.) until it has thoroughly effloresced. Then place it in a porcelain capsule, and gradually heat it to a temperature of 200° C. (392° F.), being careful not to allow the heat to rise above 205° C. (401° F.). Continue heating at the before-mentioned temperature until the mass becomes white and porous, and weighs *one hundred* (100) *parts*.

When cold, reduce it to a fine powder, and preserve it in well-stopped bottles.

A white, granular powder, attracting moisture when exposed to the air, odorless, having a sweetish, astringent taste, very slowly but completely soluble in 20 parts of water at 15° C. (59° F.), and quickly soluble in 0.7 part of boiling water. It answers to the same reactions as Alum (see *Alumen*).

ALUMINII HYDRAS.

HYDRATE OF ALUMINIUM.

$Al_2(HO)_6$; 156. — $Al_2O_3,3HO$; 78.

[HYDRATED ALUMINA.]

Alum, *eleven parts*	11
Carbonate of Sodium, *ten parts*	10
Distilled Water, *a sufficient quantity.*	

Dissolve each salt in *one hundred and fifty* (150) *parts* of Distilled Water, filter the solutions and heat them to boiling. Then having poured the hot solution of Carbonate of Sodium into a capacious vessel, gradually pour in the hot solution of Alum with constant stirring, and add about *one hundred* (100) *parts* of boiling Distilled Water. Let the precipitate subside, decant the clear liquid and pour upon the precipitate *two hundred* (200) *parts* of hot Distilled Water. Again decant, transfer the precipitate to a strainer, and wash it with hot Distilled Water until the washings give but a faint cloudiness with test-solution of chloride of barium. Then allow it to drain, dry it at a temperature not exceeding 40° C. (104° F.), and reduce it to a uniform powder.

A white, light, amorphous powder, permanent in dry air, odorless and tasteless, and insoluble in water or alcohol. Soluble, without residue, in hydrochloric or in sulphuric acid, and also in solution of potassa or of soda. When heated to redness, it loses 34.6 per cent. of its weight (water of hydration).

A solution of 1 Gm. of Hydrate of Aluminium in 30 C.c. of diluted hydrochloric acid, should not be colored blue by a drop of test-solution of ferrocyanide of potassium (iron), and should not give more than a faint cloudiness with test-solution of chloride of barium (limit of sulphate). When dissolved in solution of potassa or of soda, it should yield no precipitate with test-solution of sulphide of ammonium (zinc or lead). When Hydrate of Aluminium is boiled with 20 parts of water, and filtered, the filtrate should leave not more than a slight residue on evaporation (limit of salts of alkalies).

ALUMINII SULPHAS.

SULPHATE OF ALUMINIUM.

$Al_2(SO_4)_3.18H_2O$; 666. — $Al_2O_3,3SO_3.18HO$; 333.

A white, crystalline powder, permanent in the air, odorless, having a sweetish and afterward astringent taste, and an acid reaction. Soluble, without leaving more than a trifling residue, in 1.2 parts of water at 15° C. (59° F.), and very soluble in boiling water; almost insoluble in alcohol. When heated, the salt melts in its water of crystallization, and at or near 200° C. (392° F.), it loses the whole of it, amounting to 48.6 per cent. of its weight. The aqueous solution of the salt yields, with water of ammonia, a white, gelatinous precipitate, soluble in solution of potassa or of soda, and, with test-solution of chloride of barium, a white precipitate insoluble in hydrochloric acid. A solution of 1 Gm. of the salt in 30 C.c. of water should not give more than a faint blue coloration with a drop of test-solution of ferrocyanide of potassium (limit of iron).

If 1 Gm. of the salt be dissolved in 50 C.c. of water, a slight excess of water of ammonia added, the liquid heated until all odor of ammonia has disappeared, and then filtered, the precipitate well washed with water, and the filtrate and washings evaporated to dryness and gently ignited, the residue should not weigh more than 0.05 Gm. (abs. of more than 5 per cent. of sulphates of alkalies).

AMMONIACUM.

AMMONIAC.

A gum-resin obtained from *Dorema Ammoniacum* Don (Nat. Ord., *Umbelliferæ, Orthospermæ*).

In roundish tears, from one-sixteenth to one-fourth of an inch (2 to 6 millimeters) in diameter; externally pale yellowish-brown, internally milk-white, brittle when cold, and breaking with a flat, conchoidal, and waxy fracture; or the tears are united into irregular masses without any intervening, dark colored substance. It has a peculiar odor, and a bitter, acrid, and nauseous taste; triturated with water, it readily yields a milk-white emulsion.

Preparations: Emplastrum Ammoniaci. Emplastrum Ammoniaci cum Hydrargyro. Mistura Ammoniaci.

AMMONII BENZOAS.

BENZOATE OF AMMONIUM.

$NH_4C_7H_5O_2$; 139. — $NH_4O,C_{14}H_5O_3$; 139.

Thin, white, four-sided, laminar crystals, permanent in the air, having a slight odor of benzoic acid, a saline, bitter, afterward slightly acrid taste, and a neutral reaction. Soluble in 5 parts of water and in 28 parts of alcohol at 15° C. (59° F.); in 1.2 parts of boiling water and in 7.6 parts of boiling alcohol. When strongly heated, the salt melts, emits vapors having the odor of ammonia and of benzoic acid, and is finally wholly dissipated. The aqueous solution of the salt, when heated with potassa, evolves ammonia. On mixing the aqueous solution with a dilute solution of ferric sulphate, a flesh-colored precipitate is thrown down. If the benzoic acid be separated from the salt by precipitating with diluted nitric acid, and thoroughly washed, it should answer to the reactions of purity mentioned under *Acidum Benzoicum*.

AMMONII BROMIDUM.

BROMIDE OF AMMONIUM.

NH_4Br; 97.8. — NH_4Br; 97.8.

Colorless, transparent, prismatic crystals, or a white, granular salt, becoming yellow on long exposure to air, odorless, having a pungent, saline taste, and a neutral reaction. Soluble in 1.5 parts of water and in 150 parts of alcohol at 15° C. (59° F.); in 0.7 part of boiling water and in 15 parts of boiling alcohol. Upon ignition the salt volatilizes completely without melting. The aqueous solution, when heated with potassa, evolves ammonia. If disulphide of carbon be poured into the solution, then chlorine water added drop by drop, and the whole agitated, the disulphide will acquire a yellow or yellowish-brown color without a violet tint.

If diluted sulphuric acid be dropped on the salt, the latter should not at once assume a yellow color (bromate). If 1 Gm. of the salt be dissolved in water, some gelatinized starch added, and then a few drops of chlorine water carefully poured on top, no blue zone should make its appearance at the line of contact of the two liquids (iodide). On adding to 1 Gm. of the salt dissolved in 20 C.c. of water, 5 or 6 drops of test-solution of chloride of barium, no immediate cloudiness or precipitate should make its appearance (limit of sulphate). If 3 Gm. of the well-dried salt be dissolved in distilled water to 100 C.c., and 10 C.c. of this solution treated with a few drops of test-solution of bichromate of potassium, and then volumetric solution of nitrate of silver be added, not more than 31.4 C.c. of the latter should be consumed, before the red color ceases to disappear on stirring (abs. of more than 3 per cent. of chloride).

1 Gm. of the powdered and dry salt, when completely precipitated by nitrate of silver, yields, if perfectly pure, 1.917 Gm. of dry bromide of silver.

AMMONII CARBONAS.

CARBONATE OF AMMONIUM.

$NH_4HCO_3.NH_4NH_2CO_2$; 157. — $NH_4O,HO,2CO_2.2NH_3CO_2$; 157.

Carbonate of Ammonium should be preserved in well-stopped bottles, in a cool place.

White, translucent masses, consisting of Bicarbonate (Acid Carbonate) of Ammonium and Carbamate of Ammonium, losing both ammonia and carbonic acid gas on exposure to air, becoming opaque and finally converted into friable, porous lumps, or a white powder (Acid Carbonate of Ammonium). The salt has a pungent, ammoniacal odor, free from empyreuma, a sharp, saline taste, and an alkaline reaction. Soluble in 4 parts of water at 15° C. (59° F.), and in 1.5 parts at 65° C. (149° F.). Alcohol dissolves the Carbamate and leaves the Acid Carbonate of Ammonium. When heated, the salt is wholly dissipated, without charring. If the aqueous solution is heated to near 47° C. (116.6° F.), it begins to lose carbonic acid gas, and at 88° C. (190.4° F.) it begins to give off vapor of ammonia. Dilute acids wholly dissolve the salt with effervescence.

On acidulating the aqueous solution with nitric acid, no turbidity should be produced by test-solutions of chloride of barium (sulphate), or of nitrate of silver (chloride), nor by hydrosulphuric acid (metals). If 1 Gm. of the salt be supersaturated with diluted sulphuric acid, then diluted to 20 C.c. with distilled water, and treated with a few drops of test-solution of permanganate of potassium, the color should not be perceptibly changed by standing for five minutes at the ordinary temperature (abs. of empyreumatic substances).

To neutralize 2.616 Gm. of Carbonate of Ammonium should require 50 C.c. of the volumetric solution of oxalic acid.

Preparation: Spiritus Ammoniæ Aromaticus.

AMMONII CHLORIDUM.

CHLORIDE OF AMMONIUM.

NH_4Cl ; 53.4. — NH_4Cl ; 53.4.

A snow-white, crystalline powder, permanent in the air, odorless, having a cooling, saline taste and a slightly acid reaction. Soluble in 3 parts of water at 15° C. (59° F.), and in 1.37 parts of boiling water; very sparingly soluble in alcohol. On ignition, the salt volatilizes, without charring, and without leaving a residue. The aqueous solution of the salt, when heated with potassa, evolves vapor of ammonia. Test-solution of nitrate of silver added to the aqueous solution previously acidulated with nitric acid, produces a white precipitate soluble in ammonia.

The aqueous solution of the salt should remain unaffected by diluted sulphuric acid (abs. of barium), hydrosulphuric acid or sulphide of ammonium (metals), and, after being acidulated with hydrochloric acid, it should not be rendered turbid by test-solution of nitrate of barium (sulphate). A one per cent. aqueous solution should not be rendered blue by test-solution of ferrocyanide of potassium (iron).

Preparation: Trochisci Ammonii Chloridi.

AMMONII IODIDUM.

IODIDE OF AMMONIUM.

NH_4I; 144.6 — NH_4I; 144.6.

Iodide of Ammonium should be preserved in small, well-stopped vials, protected from light. When deeply colored, it should not be dispensed, but it may be deprived of all but traces of free iodine by washing it with stronger ether and rapidly drying.

A white, granular salt, or minute crystalline cubes, very deliquescent and soon becoming yellow or yellowish-brown on exposure to air; odorless when white, but emitting a slight odor of iodine when colored, having a sharp, saline taste and a neutral reaction. Soluble in 1 part of water and in 9 parts of alcohol at 15° C. (59° F.); in 0.5 part of boiling water, and in 3.7 parts of boiling alcohol. When heated on platinum foil, the salt evolves vapor of iodine and volatilizes without melting. The aqueous solution of the salt, when heated with potassa, evolves vapor of ammonia. If disulphide of carbon be poured into the solution, then chlorine water added drop by drop, and the whole agitated, the disulphide will acquire a violet color.

On adding to 1 Gm. of the salt, dissolved in 20 C.c. of water (with a few drops of diluted hydrochloric acid), 5 or 6 drops of test-solution of nitrate of barium, no immediate cloudiness or precipitate should make its appearance (limit of sulphate). If 1 Gm. of the salt be dissolved in 10 Gm. of water of ammonia, then shaken with a solution of 1.3 Gm. of nitrate of silver in 20 Gm. of water, and the filtrate be supersaturated with 8 Gm. of nitric acid, no cloudiness should make its appearance within ten minutes (abs. of more than about 0.5 per cent. of chloride and bromide). A one per cent. aqueous solution should not be colored blue by test-solution of ferrocyanide of potassium (abs. of iron), nor, after being mixed with gelatinized starch, should it assume a deep blue color (limit of free iodine).

1 Gm. of the dried salt, when completely precipitated with nitrate of silver, yields, if perfectly pure, 1.62 Gm. of dry iodide of silver.

AMMONII NITRAS.

NITRATE OF AMMONIUM.

NH_4NO_3; 80. — NH_4O,NO_5; 80.

Colorless crystals, generally in the form of long, thin, rhombic prisms, or in fused masses, somewhat deliquescent, odorless, having a sharp, bitter taste and a neutral reaction. Soluble in 0.5 part of water and in 20 parts of alcohol at 15° C. (59° F.); very soluble in boiling water and in 3 parts of boiling alcohol. When gradually heated, the salt melts at 165°–166° C. (329°–331° F.), and at about 185° C. (365° F.) it is decomposed into nitrous oxide gas and water, leaving no residue. The aqueous solution of the salt, when heated with potassa, evolves vapor of ammonia. On heating the salt with sulphuric acid, it emits nitrous vapors.

The aqueous solution, when acidulated with nitric acid, should not be rendered cloudy by test-solution of nitrate of silver (chloride) or of nitrate of barium (sulphate).

AMMONII PHOSPHAS.

PHOSPHATE OF AMMONIUM.

$(NH_4)_2HPO_4$; 132. — $2NH_4O,HO,PO_5$; 132.

Phosphate of Ammonium should be preserved in well-stopped bottles.

Colorless, translucent, monoclinic prisms, losing ammonia on exposure to dry air, without odor, having a cooling, saline taste and a neutral or faintly alkaline reaction. Soluble in 4 parts of water at 15° C. (59° F.), and in 0.5 part of boiling water, but insoluble in alcohol. When strongly heated, the salt fuses, afterward evolves ammonia, and at a bright red heat is wholly dissipated. The aqueous solution of the salt, when heated with potassa, evolves vapor of ammonia. Addition of test-solution of nitrate of silver to the aqueous solution produces a canary-yellow precipitate, soluble in nitric acid and in ammonia.

The aqueous solution should remain unaffected by sulphide of ammonium, or, after being acidulated with hydrochloric acid, by hydrosulphuric acid (abs. of metals), or by test-solution of chloride of barium (sulphate). When acidulated with nitric acid, it should not be rendered turbid by test-solution of nitrate of silver (chloride).

2 Gm. of the salt, dissolved in water and precipitated with test-mixture of magnesium, yields a crystalline precipitate, which, when washed with diluted water of ammonia, dried, and ignited, should weigh 1.68 Gm.

AMMONII SULPHAS.

SULPHATE OF AMMONIUM.

$(NH_4)_2SO_4$; 132. — NH_4O,SO_3 ; 66.

Colorless, transparent, rhombic prisms, permanent in the air, odorless, having a sharp, saline taste, and a neutral reaction. Soluble in 1.3 parts of water at 15° C. (59° F.), and in 1 part of boiling water; insoluble in absolute alcohol, but slightly soluble in alcohol of sp. gr. 0.817. When heated to about 140° C. (284° F.), the salt fuses, is gradually decomposed, and on ignition is wholly dissipated. The aqueous solution of the salt, when heated with potassa, evolves vapor of ammonia. With test-solution of chloride of barium it yields a white precipitate insoluble in hydrochloric acid.

A one per cent. solution of the salt should not be blackened by test-solution of sulphide of ammonium (lead and iron), nor, when acidulated with nitric acid, should it be rendered more than opalescent by test-solution of nitrate of silver (limit of chloride).

AMMONII VALERIANAS.

VALERIANATE OF AMMONIUM.

$NH_4C_5H_9O_2$; 119. — $NH_4O,C_{10}H_9O_3$; 119.

Colorless, or white, quadrangular plates, deliquescent in moist air, having the odor of valerianic acid, a sharp and sweetish taste, and a neutral reaction. Very soluble in water and in alcohol. When heated, the salt fuses, gives off vapor of ammonia and of valerianic acid, and is finally dissipated without leaving a residue. The aqueous solution, if heated with potassa, evolves vapor of ammonia, and, if supersaturated with sulphuric acid, separates an oily layer of valerianic acid on the surface. If this mixture be neutralized with ammonia, the clear liquid should not be rendered deep red by test-solution of ferric chloride (abs. of acetate). The aqueous solution, when acidified by nitric acid, should not be precipitated by test-solution of nitrate of barium (sulphate), nor of nitrate of silver (chloride).

AMYGDALA AMARA.

BITTER ALMOND.

The seed of *Amygdalus communis*, var. *amara* Linné (Nat. Ord., *Rosaceæ, Amygdaleæ*).

About one inch (25 millimeters) long, oblong-lanceolate, flattish, covered with a cinnamon-brown scurfy testa, marked by about sixteen lines emanating from a broad scar at the blunt end. The embryo has the shape of the seed, is white, oily, consists of two plano-convex cotyledons, and a short radicle at the pointed end, has a bitter taste, and, when triturated with water, yields a milk-white emulsion, which emits an odor of hydrocyanic acid.

Preparation: Syrupus Amygdalæ.

AMYGDALA DULCIS.

SWEET ALMOND.

The seed of *Amygdalus communis*, var. *dulcis* Linné (Nat. Ord., *Rosaceæ, Amygdaleæ*).

Closely resembling the bitter almond (see *Amygdala Amara*), but having a bland, sweetish taste. When triturated with water, it yields a milk-white emulsion, free from the odor of hydrocyanic acid.

Preparations: Mistura Amygdalæ. Syrupus Amygdalæ.

AMYL NITRIS.

NITRITE OF AMYL.

$C_5H_{11}NO_2$; 117. — $C_{10}H_{11}O,NO_3$; 117.

Nitrite of Amyl should be preserved in small glass-stoppered vials, in a cool and dark place.

A clear, pale yellowish liquid, of an ethereal, fruity odor, an aromatic taste, and a neutral or slightly acid reaction. When freely exposed to the air it decomposes, leaving a large residue of amyl alcohol. It is insoluble in water, but soluble, in all proportions, in alcohol, ether, chloroform, benzol, and benzin. Its sp. gr. is 0.872 to 0.874, and it boils at about 96° C. (205° F.), giving an orange-colored vapor. It burns with a fawn-colored flame. Warmed with excess of solution of potassa it gives the odor of amyl alcohol. If this alkaline mixture be treated with a little test-solution of iodide of potassium, and then with acetic acid to an acid reaction, there is an immediate separation of iodine, and on the addition of gelatinized starch a deep blue color appears (distinction from nitrate). It should remain transparent, or nearly so, when exposed to the temperature of melting ice (abs. of water).

On shaking 10 C.c. of Nitrite of Amyl with 2 C.c. of a mixture of 1 part of water of ammonia and 9 parts of water, the liquid should not redden blue litmus paper (limit of free acid).

AMYLUM.

STARCH.

The fecula of the seed of *Triticum vulgare* Villars (Nat. Ord., *Graminaceæ*).

In irregular, angular masses, which are easily reduced to powder; white, inodorous, and tasteless; insoluble in ether, alcohol, or cold water. Under the microscope appearing as granules, mostly very minute, more or less lenticular in form, and indistinctly, concentrically striated. Triturated with cold water, it gives neither an acid nor an alkaline reaction with test-paper. When boiled with water, it yields a white jelly having a bluish tinge, which, when cool, acquires a deep blue color on the addition of test-solution of iodine.

Preparations: Amylum Iodatum. Glyceritum Amyli.

AMYLUM IODATUM.

IODIZED STARCH.

Starch, *ninety-five parts*	95
Iodine, *five parts*	5
Distilled Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Triturate the Iodine with a little Distilled Water; add the Starch gradually and continue triturating until the compound assumes a uniform blue color, approaching black. Dry it at a temperature not exceeding 40° C. (104° F.) and rub it to a fine powder.

Iodized Starch should be preserved in glass-stoppered vials.

ANISUM.

ANISE.

The fruit of *Pimpinella Anisum* Linné (Nat. Ord., *Umbelliferæ, Orthospermæ*).

About one-sixth of an inch (4 millimeters) long, ovate, compressed at the sides, grayish, finely hairy, and consisting of two mericarps, each with a flat face, and five light brownish, filiform ridges, and about fifteen thin oil-tubes, which can be seen in a transverse section by the microscope. It has an agreeable, aromatic odor, and a sweet, spicy taste. It may be distinguished from Conium fruit, which it somewhat resembles, and which has been mistaken for it, by the Conium fruit consisting usually of single mericarps, which are smooth, grooved upon the face, and have crenate ridges and no oil-tubes.

ANTHEMIS.

ANTHEMIS.

[CHAMOMILE.]

The flower-heads of *Anthemis nobilis* Linné (Nat. Ord., *Compositæ*), collected from cultivated plants.

Subglobular, about three-quarters of an inch (2 centimeters) broad, consisting of an imbricated involucre and numerous white, strap-shaped, three-toothed florets, inserted upon a chaffy, conical, solid receptacle. It has a strong, agreeable odor, and an aromatic, bitter taste.

ANTIMONII ET POTASSII TARTRAS.

TARTRATE OF ANTIMONY AND POTASSIUM.

$2KSbOC_4H_4O_6.H_2O$; 664. — $KO,SbO_3,C_8H_4O_{10}.HO$; 332.

[TARTAR EMETIC.]

Small, transparent crystals of the rhombic system, becoming opaque and white on exposure to air, or a white granular powder, having a sweet, afterward disagreeable, metallic taste and a feebly acid reaction. Soluble in 17 parts of water at 15° C. (59° F.), and in 3 parts of boiling water; insoluble in alcohol, which precipitates it from its aqueous solution in form of a crystalline powder. When heated to redness, the salt chars, emits the odor of burnt sugar, and leaves a blackened residue of an alkaline reaction. The aqueous solution of the salt yields, with hydrochloric acid, a white precipitate soluble in an excess of the acid; but no precipitate occurs if tartaric acid has been previously added. In a solution of the salt acidulated with hydrochloric acid, hydrosulphuric acid causes an orange-red precipitate. A dilute solution at once becomes permanently turbid on the addition of a little carbonate of potassium.

A one per cent. aqueous solution of the salt, previously acidulated with acetic acid, should not be clouded by the addition of a few drops of test-solution of chloride of barium (sulphate), or of ferrocyanide of potassium (iron and other metals), or of oxalate of ammonium (calcium), or of nitrate of silver (chloride).

If 1 Gm. of the salt and some pieces of aluminium wire be added to strong solution of soda (sp. gr. about 1.260), contained in a long test-tube, a gas is given off which should not impart any color to filter paper wet with test-solution of nitrate of silver and held over the mouth of the test-tube (abs. of more than traces of arsenic).

Preparations: Syrupus Scillæ Compositus. Vinum Antimonii.

ANTIMONII OXIDUM.

OXIDE OF ANTIMONY.

Sb_2O_3; 288. — SbO_3; 144.

A heavy, grayish-white powder, permanent in the air, odorless and tasteless, almost insoluble in water, and insoluble in alcohol. Nitric acid fails to dissolve it, but it is readily soluble in hydrochloric acid, in warm solution of tartaric acid, and in a boiling solution of bitartrate of potassium. When heated, the Oxide turns yellow, and at a dull red heat fuses to a yellowish liquid, which concretes, on cooling, to a crystalline mass of a pearly color. At a higher temperature it sublimes, producing colorless and transparent, or white, shining, needle-shaped crystals. By dropping its solution in hydrochloric acid into water, a white precipitate is formed, which is at once changed to orange by hydrosulphuric acid.

A solution of Oxide of Antimony in an excess of tartaric acid should yield no precipitate with test-solutions of nitrate of silver (chloride), chloride of barium (sulphate), or ferrocyanide of potassium (iron and other metals).

Preparation: Pulvis Antimonialis.

ANTIMONII SULPHIDUM.

SULPHIDE OF ANTIMONY.

Sb_2S_3; 336. — SbS_3; 168.

[ANTIMONII SULPHURETUM, *Pharm.*, 1870.]

Native Sulphide of Antimony, purified by fusion, and as nearly free from Arsenic as possible.

Steel-gray masses, of a metallic lustre and a striated, crystalline fracture, forming a black or grayish-black, lustreless powder, without odor or taste, and insoluble in water or alcohol. When heated, it fuses at a temperature below red heat. One part of the powdered Sulphide, when boiled with 10 parts of hydrochloric acid, dissolves without leaving more than a slight residue, hydrosulphuric acid being evolved. The solution when added to water gives a white precipitate, which is soluble in a solution of tartaric acid. After separation of the precipitate by filtration, the filtrate gives an orange-red precipitate with hydrosulphuric acid.

Preparation: Antimonii Sulphidum Purificatum.

ANTIMONII SULPHIDUM PURIFICATUM.

PURIFIED SULPHIDE OF ANTIMONY.

Sb_2S_3; 336. — SbS_3; 168.

Sulphide of Antimony, *ten parts*	10
Water of Ammonia, *five parts*	5
Water, *a sufficient quantity.*	

Reduce the Sulphide of Antimony to a very fine powder. Separate the coarser particles by elutriation, and, when the finely divided Sulphide has been deposited, pour off the Water, add the Water of Ammonia, and macerate for five days, agitating the mixture frequently. Then let the powder settle, pour off the Water of Ammonia, and wash the residue by repeated affusion and decantation of Water. Finally, dry the product by the aid of heat.

A dark gray powder, odorless and tasteless, and insoluble in water or alcohol. It fuses at a temperature below red heat. When boiled with 10 parts of hydrochloric acid it is nearly all dissolved, hydrosulphuric acid being evolved. The solution, when added to water, yields a white precipitate, which is soluble in a solution of tartaric acid. After separation of the precipitate by filtration, the filtrate gives an orange-red precipitate with hydrosulphuric acid.

If 2 Gm. of the salt be mixed and cautiously ignited, in a porcelain crucible, with 8 Gm. of pure nitrate of sodium, and the fused mass boiled with 25 Gm. of water, there will remain a residue which should be white, or nearly so, and not yellowish nor brownish (abs. of other metallic sulphides). On boiling the filtrate with an excess of nitric acid, until no more nitrous vapors are evolved, then dissolving in it 0.1 Gm. of nitrate of silver, filtering again, if necessary, and cautiously pouring a few drops of water of ammonia on top, not more than a white cloud, but no red nor reddish precipitate should appear at the line of contact of the two liquids (abs. of more than traces of arsenic).

Preparation: Antimonium Sulphuratum.

ANTIMONIUM SULPHURATUM.

SULPHURATED ANTIMONY.

Chiefly Antimonious Sulphide [Sb_2S_3 ; 336. — SbS_3 ; 168], with a very small amount of Antimonious Oxide.

Purified Sulphide of Antimony, *one part*....................	1
Solution of Soda, *twelve parts*................................	12
Distilled Water,	
Diluted Sulphuric Acid, each, *a sufficient quantity.*	

Mix the Purified Sulphide of Antimony with the Solution of Soda and *thirty* (30) *parts* of Distilled Water, and boil the mixture over a gentle fire for two hours, constantly stirring, and occasionally adding Distilled Water so as to preserve the same volume. Strain the liquid immediately through a double muslin strainer, and drop into it, while yet hot, Diluted Sulphuric Acid so long as it produces a precipitate. Wash the precipitate with hot Distilled Water until the washings are at most but very slightly clouded by test-solution of chloride of barium ; then dry the precipitate and rub it to a fine powder.

A reddish-brown, amorphous powder, odorless and tasteless, and insoluble in water and in alcohol. When heated with 12 parts of hydrochloric acid it is nearly all dissolved with evolution of hydrosulphuric acid. The residue, after having been washed and dried, burns, on the application of a flame, with the characteristic odor of sulphur and should leave not more than a scanty ash. On dropping a solution of Sulphurated Antimony in hydrochloric acid into water, a white precipitate is produced, which, after washing and drying, should weigh not less than 85 per cent. of the sulphide. The liquid filtered from this precipitate yields an orange-red precipitate with hydrosulphuric acid.

Distilled Water boiled with Sulphurated Antimony, filtered and acidulated with hydrochloric acid, should be rendered not more than slightly opalescent by test-solution of chloride of barium (limit of sulphate).

Preparation: Pilulæ Antimonii Compositæ.

APOCYNUM.

APOCYNUM.

[CANADIAN HEMP.]

The root of *Apocynum cannabinum* Linné (Nat. Ord., *Apocynaceæ*).

Long, cylindrical, somewhat branched, one-fourth to one-third of an inch (6 to 8 millimeters) thick, pale brown, longitudinally wrinkled and transversely fissured; brittle; fracture short, white; the bark rather thick; the wood porous, spongy, with delicate, medullary rays and a thin pith; inodorous; taste bitter, disagreeable.

APOMORPHINÆ HYDROCHLORAS.

HYDROCHLORATE OF APOMORPHINE.

$C_{17}H_{17}NO_2HCl$; 303.4. — $C_{34}H_{17}NO_4.HCl$; 303.4.

The hydrochlorate of an artificial alkaloid prepared from morphine. It should be kept in small, well stopped vials, in a dark place.

Minute, colorless, or grayish-white, shining crystals, turning greenish on exposure to light and air, odorless, having a bitter taste, and a neutral or faintly acid reaction. Soluble in 6.8 parts of water and in 50 parts of alcohol at 15° C. (59° F.); slowly decomposed by boiling water or boiling alcohol; almost insoluble in ether or chloroform; should it impart color to either of these liquids, it should be rejected, or it may be purified by thoroughly agitating it with either liquid, filtering, and then rapidly drying the salt on bibulous paper, in a dark place. The aqueous solution, on gentle warming, rapidly turns green, but retains a neutral reaction. Solution of bicarbonate of sodium, added to an aqueous solution of the salt, throws down the white, amorphous alkaloid, which soon turns green on exposure to air, and forms a bluish-green solution with alcohol, a purple one with ether or pure benzol, and a violet or blue one with chloroform. Addition of test-solution of nitrate of silver to an aqueous solution of the salt produces a white precipitate insoluble in nitric acid, but instantly reduced to metallic silver by water of ammonia.

AQUA.

WATER.

H_2O; 18. — HO; 9.

Natural Water in its purest attainable state.

A colorless, limpid liquid, without odor and taste at ordinary temperatures, and remaining odorless while being heated to boiling, of a perfectly neutral reaction, and containing not more than 1 part of fixed impurities in 10,000 parts.

The transparency or color of Water should not be affected by hydrosulphuric acid or sulphide of ammonium (abs. of metallic impurities). On heating 100 C.c. of Water, acidulated with 10 C.c. of diluted sulphuric acid, to boiling, and adding enough of a dilute solution of permanganate of potassium (1 in 1000) to impart to the liquid a decided rose-red tint, this tint should not be entirely destroyed by boiling for five minutes (abs. of more than traces of organic or other oxidizable matters).

Preparation: Aqua Destillata.

AQUA AMMONIÆ.

WATER OF AMMONIA.

An aqueous solution of Ammonia [NH_3 ; 17. — NH_3 ; 17], containing 10 per cent., by weight, of the gas.

Water of Ammonia should be kept in glass-stoppered bottles, in a cool place.

A colorless, transparent liquid, of a very pungent odor, an acrid, alkaline taste, and a strongly alkaline reaction. Sp. gr. 0.959 at 15° C. (59° F.). It is completely volatilized by the heat of a water-bath. On bringing a glass rod dipped into hydrochloric acid near the liquid, dense, white fumes are evolved.

On supersaturating Water of Ammonia with diluted sulphuric acid, no empyreumatic odor should be developed. Water of Ammonia should remain clear or be at most only faintly clouded when mixed with 5 times its volume of lime-water (only minute traces of carbonic acid). When supersaturated with nitric acid, the liquid should remain clear on the addition of test-solution of chloride of barium (sulphate), or of nitrate of silver (chloride). Either before or after neutralization with nitric acid, it should not be affected by hydrosulphuric acid (metallic impurities). Test-solution of oxalate of ammonium should produce no cloudiness (calcium).

To neutralize 8.5 Gm. (or 8.9 C.c.) of Water of Ammonia should require 50 C.c. of the volumetric solution of oxalic acid.

Preparations: Linimentum Ammoniæ. Spiritus Ammoniæ Aromaticus.

AQUA AMMONIÆ FORTIOR.

STRONGER WATER OF AMMONIA.

An aqueous solution of Ammonia [NH_3 ; 17. — NH_3 ; 17], containing 28 per cent., by weight, of the gas.

Stronger Water of Ammonia should be kept in strong glass-stoppered bottles, not completely filled, in a cool place.

A colorless, transparent liquid, of an excessively pungent odor, a very acrid and alkaline taste and a strongly alkaline reaction. Sp. gr. 0.900 at 15° C. (59° F.).

Its reactions of identity and purity are the same as those of *Aqua Ammoniæ*.

To neutralize 3.4 Gm. (or 3.9 C.c.) of Stronger Water of Ammonia should require 56 C.c. of the volumetric solution of oxalic acid.

Preparation: Spiritus Ammoniæ.

AQUA AMYGDALÆ AMARÆ.

BITTER ALMOND WATER.

Oil of Bitter Almonds, *one part*	1
Distilled Water, *nine hundred and ninety-nine parts*	999
To make *one thousand parts*	1000

Dissolve the Oil in the Distilled Water, and filter through a well wetted filter.

AQUA ANISI.

ANISE WATER.

Oil of Anise, *two parts*	2
Cotton, *four parts*	4
Distilled Water, *a sufficient quantity,*	
To make *one thousand parts*	1000

Add the Oil to the Cotton, in small portions at a time, distributing it thoroughly by picking the Cotton apart after each addition ; then pack it firmly in a conical percolator, and gradually pour on Distilled Water, until *one thousand* (1000) *parts* of percolate are obtained.

AQUA AURANTII FLORUM.

ORANGE FLOWER WATER.

Recent Orange Flowers, *forty parts*	40
Water, *two hundred parts*	200
To make *one hundred parts*	100

Mix them, and, by means of steam, distil *one hundred* (100) *parts.* Keep the product in well-stopped bottles, excluded from light.

Orange Flower Water should remain unaffected by hydrosulphuric acid or sulphide of ammonium (metallic impurities), and should not be mucilaginous.

Preparation: Syrupus Aurantii Florum.

AQUA CAMPHORÆ.

CAMPHOR WATER.

Camphor, *eight parts*	8
Alcohol, *sixteen parts*	16
Cotton, *sixteen parts*	16
Distilled Water, *a sufficient quantity,*	
To make *one thousand parts*	1000

Dissolve the Camphor in the Alcohol, and add the solution to the Cotton, in small portions at a time, distributing it thoroughly by picking the Cotton apart after each addition. Expose the Cotton to the air until the Alcohol has nearly evaporated ; then pack it firmly in a conical percolator, and gradually pour on Distilled Water, until *one thousand* (1000) *parts* of percolate are obtained.

AQUA CHLORI.

CHLORINE WATER.

[Aqua Chlorinii, *Pharm.*, 1870.]

An aqueous solution of Chlorine [Cl ; 35.4. — *Cl ;* 35.4], containing at least 0.4 per cent. of the gas.

Black Oxide of Manganese, *ten parts*	10
Hydrochloric Acid, *forty parts*	40
Water, *seventy-five parts*	75
Distilled Water, *four hundred parts*	400

Place the Oxide in a flask, add the Acid previously diluted with *twenty-five* (25) *parts* of Water, and apply a gentle heat. Conduct the generated Chlorine, by suitable tubes, through the remainder of the Water contained in a small wash-bottle, to the bottom of a bottle having the capacity of *one thousand* (1000) *parts,* into which the Distilled Water has been introduced, the neck of which is loosely stopped with cotton, and which is to be kept, during the operation, at a temperature of about 10° C. (50° F.). When the air has been entirely displaced by the gas, disconnect the bottle from the apparatus, and, having inserted the stopper, shake the bottle, loosening the stopper from time to time, until the gas ceases to be absorbed. If necessary, re-connect the bottle with the apparatus, and continue passing the gas and agitating, until the Distilled Water is saturated. Finally, pour the Chlorine Water into dark amber-colored, glass-stoppered bottles, which must be completely filled therewith, and keep them in a dark and cool place.

A greenish-yellow, clear liquid, having the suffocating odor and disagreeable taste of Chlorine, and leaving no residue on evaporation. It instantly decolorizes dilute solutions of litmus and indigo. When shaken with an excess of mercury until the odor of Chlorine has disappeared, the remaining liquid should be at most but faintly acid (limit of hydrochloric acid).

On mixing 35.4 Gm. of Chlorine Water with a solution of 0.9 Gm. of iodide of potassium in 20 Gm. of water, the resulting deep-red liquid should require for complete decoloration at least 40 C.c. of the volumetric solution of hyposulphite of sodium (corresponding to at least 0.4 per cent. of Chlorine).

AQUA CINNAMOMI.

CINNAMON WATER.

Oil of Cinnamon, *two parts*	2
Cotton, *four parts*	4
Distilled Water, *a sufficient quantity,*	
To make *one thousand parts*	1000

Add the Oil to the Cotton, in small portions at a time, distributing it thoroughly by picking the Cotton apart after each addition; then pack it firmly in a conical percolator, and gradually pour on Distilled Water until *one thousand* (1000) *parts* of percolate are obtained.

AQUA CREASOTI.

CREASOTE WATER.

Creasote, *one part*	1
Distilled Water, *ninety-nine parts*	99
To make *one hundred parts*	100

Agitate the Creasote with the Distilled Water until dissolved, and filter through a well wetted filter.

AQUA DESTILLATA.

DISTILLED WATER.

H_2O; 18. — HO; 9.

Water, *one thousand parts*	1000
To make *eight hundred parts*	800

Distil the Water from a suitable apparatus provided with a block-tin or glass condenser. Collect the first *fifty* (50) *parts* and throw this portion away. Then collect *eight hundred* (800) *parts* and keep the Distilled Water in glass-stoppered bottles.

A colorless, limpid liquid, without odor or taste, and of a neutral reaction. On evaporating 1 liter of Distilled Water, no fixed residue should remain.

The transparency or color of Distilled Water should not be affected by hydrosulphuric acid or sulphide of ammonium (abs. of metals), by test-solutions of chloride of barium (sulphate), nitrate of silver (chloride), oxalate of ammonium (calcium), or mercuric chloride, with or without the subsequent addition of carbonate of potassium (ammonium salts or free ammonia). On heating 100 C.c. of Distilled Water acidulated with 10 C.c. of diluted sulphuric acid, to boiling, and adding enough of a dilute solution of permanganate of potassium (1 in 1000) to impart to the liquid a decided rose-red tint, this tint should not be entirely destroyed by boiling for five minutes, nor by subsequently setting the vessel aside, well covered, for ten hours (abs. of organic or other oxidizable matters).

AQUA FŒNICULI.

FENNEL WATER.

Oil of Fennel, *two parts*	2
Cotton, *four parts*	4
Distilled Water, *a sufficient quantity*,	
To make *one thousand parts*	1000

Add the Oil to the Cotton, in small portions at a time, distributing it thoroughly by picking the Cotton apart after each addition; then pack it firmly in a conical percolator, and gradually pour on Distilled Water, until *one thousand* (1000) *parts* of percolate are obtained.

AQUA MENTHÆ PIPERITÆ.

PEPPERMINT WATER.

Oil of Peppermint, *two parts*	2
Cotton, *four parts*	4
Distilled Water, *a sufficient quantity,*	
To make *one thousand parts*	1000

Add the Oil to the Cotton, in small portions at a time, distributing it thoroughly by picking the Cotton apart after each addition; then pack it firmly in a conical percolator, and gradually pour on Distilled Water, until *one thousand* (1000) *parts* of percolate are obtained.

AQUA MENTHÆ VIRIDIS.

SPEARMINT WATER.

Oil of Spearmint, *two parts*	2
Cotton, *four parts*	4
Distilled Water, *a sufficient quantity,*	
To make *one thousand parts*	1000

Add the Oil to the Cotton, in small portions at a time, distributing it thoroughly by picking the Cotton apart after each addition; then pack it firmly in a conical percolator, and gradually pour on Distilled Water, until *one thousand* (1000) *parts* of percolate are obtained.

AQUA ROSÆ.

ROSE WATER.

Recent Pale Rose, *forty parts*	40
Water, *two hundred parts*	200
To make *one hundred parts*	100

Mix them, and, by means of steam, distil *one hundred* (100) *parts.*

Preparation: Unguentum Aquæ Rosæ.

ARGENTI CYANIDUM.

CYANIDE OF SILVER.

$AgCN$; 133.7. — AgC_2N; 133.7.

Cyanide of Silver should be kept in dark amber-colored vials, protected from light.

A white powder, permanent in dry air, but gradually turning brown by exposure to light, odorless and tasteless, and insoluble in water or alcohol. Insoluble in cold, but soluble in boiling nitric acid, with evolution of hydrocyanic acid; also soluble in water of ammonia and in solution of hyposulphite of sodium. When heated, the salt fuses, gives off cyanogen gas, and, on ignition, metallic silver is left.

Preparation: Acidum Hydrocyanicum Dilutum.

ARGENTI IODIDUM.

IODIDE OF SILVER.

AgI; 234.3. — AgI; 234.3.

Iodide of Silver should be kept in dark amber-colored vials, protected from light.

A heavy, amorphous, light yellowish powder, unaltered by light if pure, but generally becoming somewhat greenish-yellow, without odor and taste, and insoluble in water, alcohol, diluted acids, or in solution of carbonate of ammonium. Soluble in about 2500 parts of stronger water of ammonia. When heated to about 400° C. (752° F.), it melts to a dark-red liquid, which, on cooling, congeals to a soft, yellow, slightly translucent mass. When mixed with water of ammonia, it turns white, but regains its yellowish color by washing with water. It is dissolved by an aqueous solution of cyanide of potassium, and the resulting solution yields a black precipitate with hydrosulphuric acid or sulphide of ammonium. If a small quantity of chlorine water be agitated with an excess of the salt, the filtrate acquires a dark blue color on the addition of gelatinized starch.

If the salt be boiled with test-solution of carbonate of ammonium previously diluted with an equal volume of water, the resulting filtrate, on being supersaturated with nitric acid, should not be rendered more than faintly opalescent (abs. of chloride).

ARGENTI NITRAS.

NITRATE OF SILVER.

$AgNO_3$; 169.7. — AgO,NO_5; 169.7.

Nitrate of Silver should be kept in dark amber-colored vials, protected from light.

Colorless, transparent, tabular, rhombic crystals, becoming gray or grayish-black on exposure to light in presence of organic matter, odorless, having a bitter, caustic and strongly metallic taste and a neutral reaction. Soluble in 0.8 part of water and in 26 parts of alcohol at 15° C. (59° F.), in 0.1 part of boiling water and in 5 parts of boiling alcohol. When heated to about 200° C. (392° F.), the salt fuses to a faintly yellow liquid, which, on cooling, congeals to a purely white, crystalline mass. At a higher temperature the salt is gradually decomposed, with evolution of nitrous vapors. An aqueous solution of the salt yields, with hydrochloric acid, a white precipitate soluble in ammonia.

If all the silver be precipitated with hydrochloric acid, and the filtrate be evaporated to dryness, no fixed residue should be left (abs. of foreign metallic impurities).

1 Gm. of Nitrate of Silver, when completely precipitated by hydrochloric acid, should yield 0.84 Gm. of dry chloride of silver.

Preparations: Argenti Nitras Dilutus. Argenti Nitras Fusus.

ARGENTI NITRAS DILUTUS.

DILUTED NITRATE OF SILVER.

Nitrate of Silver, *fifty parts*	50
Nitrate of Potassium, *fifty parts*	50
To make *one hundred parts*	100

Melt the salts together in a porcelain crucible, at as low a temperature as possible, stirring the melted mass well until it flows smoothly. Then cast it in suitable moulds.

Keep the product in dark amber-colored vials, protected from light.

A white, hard solid, generally in form of pencils or cones of a finely granular fracture, becoming gray or grayish-black on exposure to light in presence of organic matter, odorless, having a caustic, metallic taste, and a neutral reaction. Each of its constituents retains the solubility in water and in alcohol mentioned, respectively, under *Argenti Nitras* and *Potassii Nitras*.

An aqueous solution of 2 Gm. of Diluted Nitrate of Silver, acidulated with nitric acid, when completely precipitated by hydrochloric acid, should yield not less than 0.84 Gm. of dry chloride of silver. The filtrate, separated from the precipitate, when evaporated to dryness, leaves a residue which is completely soluble in water, and which yields a white, crystalline precipitate with a concentrated solution of bitartrate of sodium.

ARGENTI NITRAS FUSUS.

MOULDED NITRATE OF SILVER.

Nitrate of Silver, *one hundred parts*	100
Hydrochloric Acid, *four parts*	4

Melt the Nitrate of Silver in a porcelain capsule, at as low a temperature as possible; then add to it, gradually, the Hydrochloric Acid, stir well, and, when nitrous vapors cease to be evolved, pour the melted mass into suitable moulds.

Keep the product in dark amber-colored vials, protected from light.

A white, hard solid, generally in form of pencils or cones of a fibrous fracture, becoming gray or grayish-black on exposure to light in presence of organic matter, odorless, having a bitter, caustic and strongly metallic taste, and a neutral reaction. Soluble, with the exception of about 5 per cent. of chloride of silver, in 0.6 part of water and in 25 parts of alcohol at 15° C. (59° F.), in 0.5 part of boiling water, and in 5 parts of boiling alcohol. It is insoluble in ether. Whatever is left undissolved by water is completely soluble in water of ammonia.

A filtered aqueous solution of 2 Gm. of the salt, acidulated with nitric acid, when completely precipitated by hydrochloric acid, should yield 1.6 Gm. of dry chloride of silver.

ARGENTI OXIDUM.

OXIDE OF SILVER.

Ag_2O ; 231.4. — *AgO ;* 115.7.

Oxide of Silver should be kept in dark amber-colored vials, protected from light. It should not be triturated with readily oxidizable or combustible substances, and should not be brought into contact with ammonia.

A heavy, dark brownish-black powder, liable to reduction by exposure to light, odorless, having a metallic taste and imparting an alkaline reaction to water, in which it is very slightly soluble. It is insoluble in alcohol. When heated, it loses oxygen, and metallic silver is left behind. On adding the Oxide to hydrochloric acid, no effervescence should take place (abs. of carbonate).

1 Gm. of the Oxide, when treated with an excess of hydrochloric acid, should yield 1.236 Gm. of chloride of silver.

ARNICÆ FLORES.

ARNICA FLOWERS.

The flower heads of *Arnica montana* Linné (Nat. Ord., *Compositæ*).

About one and one-fifth inch (3 centimeters) broad, depressed-roundish, consisting of a scaly involucre in two rows, and a small, flat, hairy receptacle, bearing about sixteen yellow, strap-shaped ray-florets, and numerous, yellow, five-toothed, tubular disk-florets, having slender, spindle-shaped achenes, crowned by a hairy pappus. It has a feeble, aromatic odor, and a bitter, acrid taste.

Preparation: Tinctura Arnicæ Florum.

ARNICÆ RADIX.

ARNICA ROOT.

The rhizome and rootlets of *Arnica montana* Linné (Nat. Ord., *Compositæ*).

Rhizome about two inches (5 centimeters) long, and one-eighth or one-sixth of an inch (3 or 4 millimeters) thick; externally brown, rough from leaf-scars; internally whitish, with a rather thick bark, containing a circle of resin-cells, surrounding the short wood-wedges, and large, spongy pith. The rootlets numerous, thin, fragile, grayish-brown, with a thick bark containing a circle of resin-cells. Odor somewhat aromatic; taste pungently aromatic and bitter.

Preparations: Extractum Arnicæ Radicis. Extractum Arnicæ Radicis Fluidum. Tinctura Arnicæ Radicis.

ARSENII IODIDUM.

IODIDE OF ARSENIC.

[ARSENICI IODIDUM, *Pharm.*, 1870.]

AsI_3 ; 454.7. — AsI_3 ; 454.7.

Iodide of Arsenic should be kept in glass-stoppered vials, in a cool place.

Glossy, orange-red, crystalline masses, or shining, orange-red, crystalline scales, gradually losing iodine when exposed to the air, having an iodine-like odor and taste, and a neutral reaction. Soluble in 3.5 parts of water and in 10 parts of alcohol at 15° C. (59° F.); also soluble in ether and in disulphide of carbon. It is gradually decomposed by boiling water and by boiling alcohol. By heat the salt is completely volatilized. The aqueous solution has a yellow color, and, on standing, gradually decomposes into arsenious and hydriodic acids. On passing hydrosulphuric acid through the solution, a lemon-yellow precipitate is thrown down. If the salt be heated with diluted nitric acid, vapor of iodine will be given off.

Preparation: Liquor Arsenii et Hydrargyri Iodidi.

ASAFŒTIDA.

ASAFETIDA.

A gum-resin obtained from the root of *Ferula Narthex* Boissier, and of *Ferula Scorodosma* Bentham et Hooker (Nat. Ord., *Umbelliferæ, Orthospermæ.*)

In irregular masses composed of whitish tears, which are imbedded in a yellowish-gray or brownish-gray, sticky mass. The tears, when hard, break with a conchoidal fracture, showing a milk-white color, which changes gradually, on exposure, to pink, and finally to brown. It has a persistent, alliaceous odor, and a bitter, alliaceous, acrid taste; when triturated with water, it yields a milk-white emulsion. It is partly soluble in ether, and at least 60 per cent. of it should dissolve in alcohol.

Preparations: Emplastrum Asafœtidæ. Mistura Asafœtidæ. Pilulæ Aloes et Asafœtidæ. Pilulæ Asafœtidæ. Pilulæ Galbani Compositæ. Tinctura Asafœtidæ.

ASCLEPIAS.

ASCLEPIAS.

[PLEURISY ROOT.]

The root of *Asclepias tuberosa* Linné (Nat. Ord., *Asclepiadaceæ*).

Root large and fusiform, dried in longitudinal or transverse sections; from one to six inches (25 to 150 millimeters) long, and about three-quarters of an inch (2 centimeters) or more in thickness; the head knotty, and slightly but distinctly annulate, the remainder longitudinally wrinkled; externally orange-brown, internally whitish; tough, and having an uneven fracture; bark thin, and in two distinct layers, the inner one whitish; wood yellowish, with large, white, medullary rays; it is inodorous, and has a bitterish, somewhat acrid taste; when long kept it acquires a gray color.

ASPIDIUM.

ASPIDIUM.

[Filix Mas, *Pharm.*, 1870.—Male Fern.]

The rhizome of *Aspidium Filix-mas* Swartz, and of *Aspidium marginale* Willdenow (Nat. Ord., *Filices*).

From three to six inches (7 to 15 centimeters) long, one-half to one inch (12 to 25 millimeters) in thickness, and, together with the closely imbricated, roundish and slightly curved stipe-remnants, two to three inches (50 to 75 millimeters) in diameter; densely covered with brown, glossy, transparent and soft, chaffy scales; externally of a dark brown color, internally pale green, rather spongy; the vascular bundles about ten (*A. Filix-Mas*), or six (*A. marginale*) in number, arranged in an interrupted circle; odor slight, but disagreeable; taste sweetish, bitter, somewhat astringent and nauseous.

The chaff, together with the dead portions of the rhizome and stipes, should be removed, and only such portions as have retained their green color should be used.

Preparation: Oleoresina Aspidii.

ATROPINA.

ATROPINE.

[Atropia, *Pharm.*, 1870.]

$C_{17}H_{23}NO_3$; 289. — $C_{34}H_{23}NO_6$; 289.

An alkaloid prepared from Belladonna.

Colorless, or white, acicular crystals, permanent in the air, odorless, having a bitter and acrid taste, and an alkaline reaction. Soluble in 600 parts of water at 15° C. (59° F.), and in 35 parts of boiling water; very soluble in alcohol; also soluble in 3 parts of chloroform and in 60 parts of ether. When heated to 114° C. (237.2° F.), the crystals melt, and, on ignition, are completely dissipated, emitting acrid vapors. Atropine and its salts are decomposed and rendered inert by prolonged contact with potassa or soda, and, if heated with either of them, evolve vapor of ammonia.

With sulphuric acid Atropine yields a colorless solution, which is neither colored by nitric acid (abs. of and difference from morphine), nor at once by solution of bichromate of potassium (abs. of and difference from strychnine), though the latter reagent, by prolonged contact, causes the solution to turn green. On heating this green solution, diluted with a little water, to boiling, a pleasant odor, recalling that of roses and orange flowers, is developed. The aqueous solution of Atropine, or of any of its salts, is not precipitated by test-solution of platinic chloride (difference from most other alkaloids). With chloride of gold it yields a precipitate which, when recrystallized from boiling water acidulated with hydrochloric acid, is deposited on cooling (rendering the liquid turbid), in minute crystals, forming a dull, lustreless powder on drying (difference from hyoscyamine).

ATROPINÆ SULPHAS.

SULPHATE OF ATROPINE.

[Atropiæ Sulphas, *Pharm.*, 1870.]

$(C_{17}H_{23}NO_3)_2H_2SO_4$; 676. — $C_{34}H_{23}NO_6.HO,SO_3$; 338.

A white, indistinctly crystalline powder, permanent in the air, odorless, having a very bitter, nauseating taste, and a neutral reaction. Soluble in 0.4 part of water and in 6.5 parts of alcohol at 15° C. (59° F.); very soluble in boiling water and in boiling alcohol; also soluble in 0.3 part of absolute alcohol. When heated on platinum foil, the salt is decomposed and wholly dissipated, emitting acrid vapors. On adding test-solution of carbonate of sodium to a concentrated, aqueous solution of the salt, a white precipitate is obtained which answers to the reactions of Atropine (see *Atropina*). An aqueous solution of the salt yields, with test-solution of chloride of barium, a white precipitate insoluble in hydrochloric acid.

AURANTII AMARI CORTEX.

BITTER ORANGE PEEL.

The rind of the fruit of *Citrus vulgaris* Risso (Nat. Ord., *Aurantiaceæ*).

In narrow, thin bands or in quarters; epidermis of a dark brownish-green color, glandular, and with very little of the spongy, white, inner layer adhering to it; it has a fragrant odor, and an aromatic, bitter taste.

Preparations: Extractum Aurantii Amari Fluidum. Tinctura Aurantii Amari.

AURANTII DULCIS CORTEX.

SWEET ORANGE PEEL.

The rind of the fruit of *Citrus Aurantium* Risso (Nat. Ord., *Aurantiaceæ*).

Closely resembling Bitter Orange Peel, but having an orange-yellow color. It has a sweetish, fragrant odor, and an aromatic, slightly bitter taste.

Preparations: Syrupus Aurantii. Tinctura Aurantii Dulcis.

AURANTII FLORES.

ORANGE FLOWERS.

The partly expanded, fresh flowers of *Citrus vulgaris* and *Citrus Aurantium* Risso (Nat. Ord., *Aurantiaceæ*).

When it is desired to keep fresh Orange Flowers for some time, they may be preserved by mixing them well with half their weight of chloride of sodium, pressing the mixture in a suitable jar and keeping it, well-closed, in a cool place.

About half an inch (12 millimeters) long; calyx small, cup-shaped, five-toothed; petals five, oblong, obtuse, rather fleshy, white and glandular-punctate; stamens numerous, in about three sets; ovary globular, upon a small disk, with a cylindrical style, and a globular stigma; odor very fragrant; taste aromatic and somewhat bitter.

Preparation: Aqua Aurantii Florum.

AURI ET SODII CHLORIDUM.

CHLORIDE OF GOLD AND SODIUM.

A mixture composed of equal parts of dry Chloride of Gold [$AuCl_3$; 302.4. — $AuCl_3$; 302.4], and Chloride of Sodium [NaCl; 58.4. — *NaCl*; 58.4].

An orange-yellow powder, slightly deliquescent in damp air, odorless, having a saline and metallic taste, and a slightly acid reaction. The compound is very soluble in water; at least one-half of it should be soluble in cold alcohol. When exposed to a red heat, it is decomposed and metallic gold is separated. A fragment of the compound imparts an intense, persistent, yellow color to a non-luminous flame. Its aqueous solution yields, with test-solution of nitrate of silver, a white precipitate insoluble in nitric acid, but soluble in ammonia. On bringing a glass rod dipped into water of ammonia close to a portion of the compound, no white fumes should make their appearance (abs. of free acid).

If 0.5 Gm. of Chloride of Gold and Sodium be dissolved in 20 C.c. of water, and treated with a clear solution of 2 Gm. of ferrous sulphate in 20 C.c. of water acidulated with a few drops of sulphuric acid, a brown precipitate of metallic gold will be thrown down. If, after at least two hours, this precipitate be separated, well washed, dried and ignited, the residue of metallic gold should weigh not less than 0.162 Gm. (corresponding to 32.4 per cent. of metallic gold).

AZEDARACH.

AZEDARACH.

The bark of the root of *Melia Azedarach* Linné (Nat. Ord., *Meliaceæ*).

In curved pieces or quills varying in size and thickness; outer surface red-brown, with irregular, blackish, longitudinal ridges; inner surface whitish or brownish, longitudinally striate; fracture more or less fibrous; upon transverse section tangentially striate, with yellowish bast-fibres; almost inodorous, sweetish, afterward bitter and nauseous.

If collected from old roots, the bark should be freed from the thick, rust-brown, nearly tasteless, corky layer.

BALSAMUM PERUVIANUM.

BALSAM OF PERU.

A balsam obtained from *Myroxylon Pereiræ* Klotzsch (Nat. Ord., *Leguminosæ, Papilionaceæ*).

A thick liquid, brownish-black in bulk, reddish-brown and transparent in thin layers, having a syrupy consistence, a somewhat smoky, but agreeable and balsamic odor, and a warm, bitter, afterward acrid taste. Sp. gr. 1.135 to 1.150. It is entirely soluble in 5 parts of alcohol, and should not diminish in volume, when agitated with an equal bulk of benzin, or water (abs. of fixed oils and alcohol). It is readily miscible with absolute alcohol, chloroform, or glacial acetic acid. If 1 volume of the Balsam be triturated with 2 volumes of sulphuric acid, a tough, homogeneous, cherry-red mixture should result. If this be washed, after a few minutes, with cold water, it should be converted into a resinous mass which is brittle when cold. A mixture of 3 parts of the Balsam with 1 part of disulphide of carbon remains clear; but a mixture of 1 part of the Balsam with 3 parts of disulphide of carbon separates from the Balsam about 40 per cent. of resin. The liquid poured off from the latter should be transparent, should not have a deeper color than light brownish, and should not exhibit more than a faint fluorescence (abs. of gurjun balsam). When distilled with 200 times its weight of water, no volatile oil should pass over.

BALSAMUM TOLUTANUM.

BALSAM OF TOLU.

A balsam obtained from *Myroxylon toluifera* Kunth (Nat. Ord., *Leguminosæ, Papilionaceæ*).

A yellowish or brownish-yellow, semifluid or nearly solid mass, transparent in thin layers, brittle when cold, having an agreeable, balsamic odor, and a mild, aromatic taste. It is entirely soluble in alcohol, and the solution shows an acid reaction with test-paper. It is almost insoluble in water and in benzin. Warm disulphide of carbon removes from the Balsam scarcely anything but cinnamic and benzoic acids. On evaporating the disulphide, no substance having the properties of resin should remain.

Preparations: Syrupus Tolutanus. Tinctura Tolutana.

BELLADONNÆ FOLIA.

BELLADONNA LEAVES.

The leaves of *Atropa Belladonna* Linné (Nat. Ord., *Solanaceæ*).

Leaves from four to six inches (10 to 15 centimeters) long, broadly ovate, narrowed into a petiole, tapering at the apex, entire on the margin, smooth, thin, the upper surface brownish-green, the lower surface grayish-green, having a slight odor, and a bitterish, disagreeable taste.

Preparations: Extractum Belladonnæ Alcoholicum. Tinctura Belladonnæ.

BELLADONNÆ RADIX.

BELLADONNA ROOT.

The root of *Atropa Belladonna* Linné (Nat. Ord., *Solanaceæ*).

In cylindrical, somewhat tapering, longitudinally wrinkled pieces, from half an inch to an inch (12 to 25 millimeters) or more in thickness; externally brownish-gray, internally whitish; nearly inodorous, having a sweetish, afterward bitterish and strongly acrid taste, and breaking with a nearly smooth and mealy fracture.

Roots which are tough and woody, breaking with a splintery fracture, should be rejected.

Preparations: Abstractum Belladonnæ. Emplastrum Belladonnæ. Extractum Belladonnæ Fluidum.

BENZINUM.

BENZIN.

[PETROLEUM BENZIN. PETROLEUM ETHER.]

A purified distillate from American Petroleum, consisting of hydrocarbons, chiefly of the marsh-gas series [C_5H_{12}; C_6H_{14}. — $C_{10}H_{12}$; $C_{12}H_{14}$, and homologous compounds], having a sp. gr. from 0.670 to 0.675, and boiling at 50° to 60° C. (122° to 140° F.).

Benzin should be carefully kept in well-stopped bottles or cans, in a cool place, remote from lights or fire.

A transparent, colorless, diffusive liquid, of a strong, characteristic odor, slightly resembling that of petroleum, but much less disagreeable; neutral in reaction; insoluble in water, soluble in about 6 parts of alcohol, and readily so in ether, chloroform, benzol and fixed and volatile oils. It is highly inflammable, and its vapor, when mixed with air and ignited, explodes violently.

Benzin, when evaporated upon the hand, should leave no odor, and, when evaporated in a warmed dish, should leave no residue (abs. of heavy hydrocarbons). When boiled a few minutes with one-fourth its volume of spirit of ammonia and a few drops of test-solution of nitrate of silver, the ammoniacal liquid should not turn brown (abs. of pyrogenous products, and sulphur compounds); and it should require 6 parts of officinal alcohol to dissolve it (difference from benzol). If 5 drops are added to a mixture of 40 drops of sulphuric acid with 10 drops of nitric acid, in a test-tube, the liquid warmed and set aside for half an hour, and then diluted, in a shallow dish, with twice its volume of water, it should not have the bitter-almond-like odor of nitro-benzol (abs. of benzol).

BENZOINUM.

BENZOIN.

A balsamic resin obtained from *Styrax Benzoin* Dryander (Nat. Ord., *Styraceæ*).

In lumps consisting of agglutinated, yellowish-brown tears, which are internally milk-white, or in the form of a reddish-brown mass, more or less mottled from whitish tears imbedded in it. It is almost wholly soluble in 5 parts of moderately warm alcohol, and in solution of potassa. When heated, it gives off fumes of benzoic acid. It has a slight, aromatic taste, and an agreeable, balsamic odor.

When Benzoin is boiled with milk of lime, the hot filtrate should not give off the odor of oil of bitter almond on the addition of test-solution of permanganate of potassium (abs. of cinnamic acid).

Preparations: Adeps Benzoinatus. Tinctura Benzoini. Tinctura Benzoini Composita.

BISMUTHI CITRAS.

CITRATE OF BISMUTH.

$BiC_6H_5O_7$; 399. — $BiO_3,C_{12}H_5O_{11}$; 399.

Subnitrate of Bismuth, *ten parts*	10
Citric Acid, *seven parts*	7
Distilled Water, *a sufficient quantity.*	

Boil the Subnitrate of Bismuth and the Citric Acid with *forty* (40) *parts* of Distilled Water, until a drop of the mixture yields a clear solution with water of ammonia. Then add *five hundred* (500) *parts* of Distilled Water, allow the suspended matter to deposit, wash the precipitate (first by decantation, and afterward on a strainer), with Distilled Water, until the washings are tasteless, and dry the residue at a gentle heat.

A white, amorphous powder, permanent in the air, odorless and tasteless, insoluble in water or alcohol, but soluble in water of ammonia. When strongly heated, the salt chars, and, on ignition, leaves a more or less blackened residue with a yellow surface, which is dissolved by warm nitric acid. This solution, on being dropped into water, occasions a white turbidity. The ammoniacal solution, when treated with hydrosulphuric acid in excess, yields a black precipitate. The filtrate, deprived, by heat, of the excess of hydrosulphuric acid and cooled, when boiled with lime-water, produces a white precipitate; and when a portion of it is mixed with an equal volume of concentrated sulphuric acid and cooled, a brown or brownish-black zone should not appear around a crystal of ferrous sulphate dropped into the liquid (abs. of nitrate).

Preparation: Bismuthi et Ammonii Citras.

BISMUTHI ET AMMONII CITRAS.

CITRATE OF BISMUTH AND AMMONIUM.

Citrate of Bismuth, *ten parts*..................................	10
Water of Ammonia,	
Distilled Water, each, *a sufficient quantity*.	

Mix the Citrate of Bismuth with *twenty* (20) *parts* of Distilled Water to a smooth paste, and gradually add Water of Ammonia until the salt is dissolved, and the liquid has a neutral or only faintly alkaline reaction. Then filter the solution, evaporate it to a syrupy consistence, and spread it on plates of glass, so that, on drying, the salt may be obtained in scales.

Keep the product in small, well-stopped vials, protected from light.

Small, shining, pearly or translucent scales, becoming opaque on exposure to air, odorless, having a slightly acidulous and metallic taste, and a neutral or faintly alkaline reaction. Very soluble in water and but sparingly soluble in alcohol. When strongly heated, the salt melts, then chars, and finally leaves a more or less blackened residue with a yellow surface, which is dissolved by warm nitric acid. This solution, on being dropped into water, occasions a white turbidity. The aqueous solution of the salt, when boiled with solution of potassa, evolves vapor of ammonia; and, when treated with hydrosulphuric acid, yields a black precipitate. If the filtrate be deprived, by heat, of the excess of hydrosulphuric acid and cooled, a portion of it, boiled with lime-water, produces a white precipitate. Another portion, after being mixed with an equal volume of concentrated sulphuric acid and cooled, should not produce a brown or brownish-black zone around a crystal of ferrous sulphate dropped into the liquid (abs. of nitrate).

BISMUTHI SUBCARBONAS.

SUBCARBONATE OF BISMUTH.

$(BiO)_2CO_3.H_2O$; 530. — $BiO_3,CO_2.HO$; 265.

A white, or pale yellowish-white powder, permanent in the air, odorless and tasteless, and insoluble in water or alcohol. When heated to redness, the salt loses moisture and carbonic acid gas, and leaves a yellow residue which is soluble in nitric or in hydrochloric acid, and which is blackened by hydrosulphuric acid.

On dissolving 1 part of the salt in 6 parts of warm nitric acid (sp. gr. 1.200), a copious effervescence takes place, and no residue should be left (abs. of insoluble foreign salts). On pouring this solution into 50 parts of water, a white precipitate is produced, and, on filtering and concentrating the filtrate to 6 parts, a portion of this, mixed with 5 times its volume of diluted sulphuric acid, should not become cloudy (abs. of lead). If another portion be precipitated with an excess of water of ammonia, the supernatant liquid should not exhibit a blue tint (copper). On diluting a third portion with 5 volumes of distilled water, the filtrate should not be affected by test-solution of nitrate of silver (chloride), or of nitrate of barium (sulphate); nor by hydrochloric acid (silver). If the salt be boiled with acetic acid diluted with an equal volume of water, and the cold filtrate freed from Bismuth by hydrosulphuric acid, the new filtrate should leave no fixed residue on evaporation (alkalies and alkaline earths). On boiling 1 Gm. of the salt with 10 C.c. of solution of soda (sp. gr. 1.260), and holding a glass rod dipped in acetic acid over the test-tube, not more than a faint, white cloud, but no heavy, white fumes should appear (only traces of ammonia). If the preceding mixture, after thorough boiling, be diluted with water to 50 C.c. and filtered, the filtrate, when supersaturated with hydrochloric acid, and treated with hydrosulphuric acid, should not deposit more than a trace of a precipitate, which should not have a yellow or orange color (only traces of antimony, arsenic, tin). On boiling 1 Gm. of the salt with 10 C.c. of strong solution of soda, decanting the liquid from the precipitated oxide of bismuth into a long test-tube, and adding about 0.5 Gm. of aluminium wire cut into small pieces (a loose plug of cotton being pushed a short distance down the tube), the generated gas should not impart any color or tint to paper wet with test-solution of nitrate of silver and kept over the mouth of the test-tube for half an hour (abs. of more than traces of arsenic).

BISMUTHI SUBNITRAS.

SUBNITRATE OF BISMUTH.

$BiONO_3.H_2O$; 306. — $BiO_3,NO_5.2HO$; 306.

A heavy, white powder, permanent in the air, odorless and almost tasteless, showing a slightly acid reaction when moistened on litmus paper, and insoluble in water or alcohol. When heated to redness, the salt gives off moisture, and afterward nitrous vapors, leaving a yellow residue which is soluble in nitric or in hydrochloric acid, and which is blackened by hydrosulphuric acid.

On dissolving 1 part of the salt in 5 parts of warm nitric acid (sp. gr. 1.200), no effervescence should occur (abs. of carbonate), and no residue should be left (abs. of insoluble foreign salts). The reactions, for purity, of this solution, as well as those of the original salt, should be the same as those mentioned under *Bismuthi Subcarbonas.*

BRAYERA.

BRAYERA.

[Koosso.]

The female inflorescence of *Brayera anthelmintica* Kunth (Nat. Ord., *Rosaceæ, Roseæ*).

In bundles, or rolls, or compressed clusters, consisting of panicles about ten inches (25 centimeters) long, with a sheathing bract at the base of each branch ; the two roundish bracts at the base of each flower, and the four or five obovate, outer sepals are of a reddish color, membranous and veiny ; calyx top-shaped, hairy, inclosing two carpels or nutlets. Its odor is slight, fragrant, and tea-like, and its taste bitter and nauseous.

Preparations : Extractum Brayeræ Fluidum. Infusum Brayeræ.

BROMUM.

BROMINE.

Br ; 79.8. — *Br ;* 79.8.

[BROMINIUM, *Pharm.*, 1870.]

A dark brownish-red, mobile liquid, evolving, even at the ordinary temperature, a yellowish-red vapor highly irritating to the eyes and lungs, and having a peculiar, suffocating odor, resembling that of chlorine. It boils at 63° C. (145.4° F.) and has the sp. gr. 2.990. It is soluble in 33 parts of water at 15° C. and (59° F.), is dissipated on boiling the water, and is very soluble in alcohol and in ether with gradual decomposition of these two liquids ; also very soluble in chloroform and in disulphide of carbon. It is completely volatilized by exposure to air or to heat. It destroys the color of litmus and of sulphate of indigo, and renders gelatinized starch yellow.

If 3 Gm. of Bromine be mixed with 30 C.c. of water and enough water of ammonia to render the solution colorless, the liquid then digested with carbonate of barium. filtered, evaporated to dryness, and the residue gently ignited, the latter should be soluble in absolute alcohol without leaving more than 0.26 Gm. of residue (abs. of more than 3 per cent. of chlorine). If an aqueous solution of Bromine be poured upon reduced iron and shaken with the latter until it has become nearly colorless, then filtered. mixed with gelatinized starch, and a few drops of Bromine solution be now carefully poured on top, not more than a very faint blue zone should appear at the line of contact of the two liquids (limit of iodine).

BRYONIA.

BRYONIA.

[BRYONY.]

The root of *Bryonia alba*, and of *Bryonia dioica* Linné (Nat. Ord., *Cucurbitaceæ*).

In transverse sections about two inches (5 centimeters) in diameter, the bark gray-brown, rough, thin, the central portion whitish or grayish, with numerous, small wood-bundles arranged in circles and projecting, radiating lines ; inodorous, taste disagreeably bitter.

Preparation : Tinctura Bryoniæ.

BUCHU.

BUCHU.

The leaves of *Barosma betulina* Bartling, *Barosma crenulata* Hooker, and *Barosma serratifolia* Willdenow (Nat. Ord., *Rutaceæ, Diosmeæ*).

About three-fifths of an inch (15 millimeters) long, roundish-obovate with a rather wedge-shaped base, or varying between oval and obovate, obtuse, crenate or serrate, with a gland at the base of each tooth, pale green, thickish, pellucid-punctate; strongly aromatic, somewhat mint-like, pungent and bitterish.

The leaves of *Barosma serratifolia* are about one inch (25 millimeters) long, linear-lanceolate, thinner than, but otherwise like the preceding.

Preparation: Extractum Buchu Fluidum.

CAFFEINA.

CAFFEINE.

$C_8H_{10}N_4O_2.H_2O$; 212. — $C_{16}H_{10}N_4O_4.2HO$; 212.

A proximate principle of feebly alkaloidal power, generally prepared from the dried leaves of *Camellia Thea* Link (Nat. Ord., *Ternstrœmiaceæ*), or from the dried seeds of *Coffea arabica* Linné (Nat. Ord., *Rubiaceæ*); or from Guarana, and occurring also in other plants.

Colorless, soft and flexible crystals, generally quite long, and of a silky lustre, permanent in the air, odorless, having a bitter taste and a neutral reaction. Soluble in 75 parts of water and in 35 parts of alcohol at 15° C. (59° F.); in 9.5 parts of boiling water and very soluble in boiling alcohol; also soluble in about 6 parts of chloroform, but very slightly soluble in ether or in disulphide of carbon. When heated to 100° C. (212° F.), the crystals lose 8.49 per cent. in weight (of water of crystallization); and, when heated on platinum foil, they are completely volatilized without carbonizing. On heating Caffeine with chlorine water, or treating it with concentrated nitric acid, it is decomposed; on evaporating afterward, at a gentle heat, a yellow mass is left, which, when moistened with water of ammonia, assumes a purplish color.

Sulphuric or nitric acid should dissolve it without color, and its aqueous solution should not be precipitated by test-solution of iodide of mercury and potassium (abs. of other alkaloids).

CALAMUS.

CALAMUS.

[SWEET FLAG.]

The rhizome of *Acorus Calamus* Linné (Nat. Ord., *Araceæ*).

In sections of various lengths, unpeeled, about three-quarters of an inch (2 centimeters) broad, subcylindrical, longitudinally wrinkled; on the lower surface marked with the circular scars of the rootlets in wavy lines; externally reddish-brown, somewhat annulate from remnants of leaf-sheaths; internally whitish, of a spongy texture, breaking with a short, corky fracture, showing numerous oil-cells and scattered wood-bundles, the latter crowded within the subcircular nucleus-sheath. It has an aromatic odor, and a strongly pungent taste.

Preparation: Extractum Calami Fluidum.

CALCII BROMIDUM.

BROMIDE OF CALCIUM.

$CaBr_2$; 199.6. — *CaBr*; 99.8.

Bromide of Calcium should be preserved in well-stopped bottles.

A white, granular salt, very deliquescent, odorless, having a pungent, saline and bitter taste and a neutral reaction. Soluble in 0.7 part of water and in 1 part of alcohol at 15° C. (59° F.); very soluble in boiling water and in boiling alcohol. At a dull red heat the salt fuses without losing anything but moisture. At a higher temperature it is partially decomposed. An aqueous solution of the salt yields, with test-solution of oxalate of ammonium, a white precipitate soluble in hydrochloric, but insoluble in acetic acid. If disulphide of carbon be poured into a solution of the salt, then chlorine water added drop by drop, and the whole agitated, the disulphide will acquire a yellow or yellowish-brown color without a violet tint.

If diluted sulphuric acid be dropped upon the salt, the latter should not at once assume a yellow color (abs. of bromate). If 1 Gm. of the salt be dissolved in 10 C.c. of water, some gelatinized starch added and then a few drops of chlorine water carefully poured on top, no blue zone should make its appearance at the line of contact of the two liquids (iodide). On adding to 1 Gm. of the salt dissolved in 20 C.c. of water, 5 or 6 drops of test-solution of nitrate of barium, no immediate cloudiness or precipitate should make its appearance (sulphate). If a solution of the salt be precipitated with an excess of nitrate of silver, the washed precipitate for some time shaken with a cold, saturated solution of carbonate of ammonium, and the decanted and filtered liquid supersaturated with nitric acid, not more than a faint cloudiness, insufficient to produce a precipitate, should appear (limit of chloride). On adding to the aqueous solution, first, chloride of ammonium, then test-solution of carbonate of ammonium and water of ammonia in slight excess, and gently warming, the filtrate separated from the resulting precipitate should not be rendered more than faintly turbid by test-solution of phosphate of sodium (limit of magnesium).

1 Gm. of the dry salt, when completely precipitated by nitrate of silver, yields, if perfectly pure, 1.878 Gm. of dry bromide of silver.

CALCII CARBONAS PRÆCIPITATUS.

PRECIPITATED CARBONATE OF CALCIUM.

$CaCO_3$; 100. — CaO,CO_2; 50.

A very fine, white, impalpable powder, permanent in the air, odorless and tasteless, and insoluble in water or alcohol. Wholly soluble in hydrochloric, nitric or acetic acid with copious effervescence. By exposure to a red heat the salt loses carbonic acid gas, and the residue has an alkaline reaction. A neutral solution of the salt in acetic acid yields, with test-solution of oxalate of ammonium, a white precipitate soluble in hydrochloric, but insoluble in acetic acid.

On adding to another portion of the same solution, first, chloride of ammonium, then test-solution of carbonate of ammonium and water of ammonia in slight excess, and gently warming, the filtrate separated from the resulting precipitate should not be rendered more than faintly turbid by test-solution of phosphate of sodium (limit of magnesium). A solution of the salt in hydrochloric acid, freed from carbonic acid gas by heat, should not be rendered turbid, when supersaturated with water of ammonia (abs. of aluminium, iron, or phosphate).

CALCII CHLORIDUM.

CHLORIDE OF CALCIUM.

$CaCl_2$; 110.8. — $CaCl$; 55.4.

Chloride of Calcium, deprived of its water by fusion at a low red heat. It should be preserved in well-stopped bottles.

Colorless, slightly translucent, hard and friable masses, very deliquescent, odorless, having a hot, sharp, saline taste, and a neutral or faintly alkaline reaction. Soluble in 1.5 parts of water and in 8 parts of alcohol at 15° C. (59° F.); very soluble in boiling water, and soluble in 1.5 parts of boiling alcohol. At a low red heat the salt fuses to an oily liquid which, on cooling, solidifies to a mass of the original appearance, entirely soluble in water. The aqueous solution yields, with test-solution of oxalate of ammonium, a white precipitate, soluble in hydrochloric but insoluble in acetic acid. With test-solution of nitrate of silver, it yields a white precipitate soluble in ammonia.

The dilute aqueous solution should not be precipitated by water of ammonia (aluminium, iron, etc.), nor by test-solution of chloride of barium (sulphate). On adding to the aqueous solution, first, chloride of ammonium, then test-solution of carbonate of ammonium and water of ammonia in slight excess, and gently warming, the filtrate separated from the resulting precipitate should not be rendered more than faintly turbid by test-solution of phosphate of sodium (limit of magnesium).

CALCII HYPOPHOSPHIS.

HYPOPHOSPHITE OF CALCIUM.

$CaH_4(PO_2)_2$; 170. — $CaO,2HO,PO$; 85.

Colorless or white, six-sided prisms, or thin, flexible scales, of a pearly lustre, permanent in dry air, odorless, having a nauseous, bitter taste and a neutral reaction. Soluble in 6.8 parts of water at 15° C. (59° F.), and in 6 parts of boiling water; insoluble in alcohol. When heated in a dry test-tube, the salt decrepitates, gives off water, then evolves spontaneously-inflammable phosphoretted hydrogen, leaving a reddish residue which amounts to about 80 per cent. The aqueous solution yields, with test-solution of oxalate of ammonium, a white precipitate soluble in hydrochloric, but insoluble in acetic acid. Acidified with hydrochloric acid and added to excess of test-solution of mercuric chloride, it produces a white precipitate of mercurous chloride, and, on further addition, metallic mercury separates.

When dissolved in water, the salt should leave no insoluble residue (insoluble salts of calcium). The aqueous solution should yield no precipitate with test-solution of acetate of lead (soluble phosphate), nor, after being acidulated with nitric acid, with test-solution of chloride of barium (soluble sulphate). On adding to the aqueous solution, first, chloride of ammonium, then test-solution of carbonate of ammonium and water of ammonia in slight excess, and gently warming, the filtrate separated from the resulting precipitate should not be rendered more than faintly turbid by test-solution of phosphate of sodium (limit of magnesium).

Preparation: Syrupus Hypophosphitum.

CALCII PHOSPHAS PRÆCIPITATUS.

PRECIPITATED PHOSPHATE OF CALCIUM.

$Ca_3(PO_4)_2$; 310. — $3CaO,PO_5$; 155.

A light, white, amorphous powder, permanent in the air, odorless, tasteless, and insoluble in water or alcohol. Wholly soluble in nitric or in hydrochloric acid without effervescence (abs. of carbonate). At an intense heat it is fusible without decomposition. A solution of the salt in diluted nitric acid, after being mixed with an excess of acetate of sodium, yields a white precipitate with test-solution of oxalate of ammonium, and a lemon-yellow precipitate with test-solution of ammonio-nitrate of silver.

On dissolving 1 Gm. of the salt in hydrochloric acid, and subsequently adding water of ammonia, the salt is precipitated unaltered. The precipitate should yield nothing to a boiling solution of potassa (abs. of aluminium), and, when washed and dried, should weigh 1 Gm.

Preparation: Syrupus Calcii Lactophosphatis.

CALENDULA.

CALENDULA.

[MARIGOLD.]

The fresh, flowering herb of *Calendula officinalis* Linné (Nat. Ord., *Compositæ*).

Stem somewhat angular, rough; leaves alternate, thickish, hairy, spatulate or oblanceolate, slightly toothed, the upper ones sessile; flower-heads nearly two inches (5 centimeters) broad, the yellow strap-shaped ray-florets in one or several rows, fertile, the achenes incurved and muricate; odor slightly narcotic; taste bitter and saline.

Preparation: Tinctura Calendulæ.

CALUMBA.

CALUMBA.

[COLUMBO.]

The root of *Jateorrhiza Calumba* Miers (Nat. Ord., *Menispermaceæ*).

In nearly circular disks, one and one-fifth to two and two-fifths inches (3 to 6 centimeters) in diameter, yellowish-gray, depressed in the center, with two or three interrupted circles of projecting wood-bundles, distinctly radiate in the outer portion; fracture short, mealy; odor slight; taste mucilaginous, slightly aromatic, persistently bitter.

Preparations: Extractum Calumbæ Fluidum. Tinctura Calumbæ.

CALX.

LIME.

CaO; 56. — CaO; 28.

Lime should be preserved in well-closed vessels, in a dry place.

Hard, white or grayish-white masses, gradually attracting moisture and carbonic acid gas on exposure to air and falling to a white powder, odorless, having a sharp, caustic taste and an alkaline reaction. Soluble in 750 parts of water at 15° C. (59° F.) and in 1300 parts of boiling water; insoluble in alcohol. When heated to a white heat, Lime is neither fused nor altered. Brought into contact with about half its weight of water, it absorbs the latter, becomes heated and is gradually converted into a white powder (slaked lime).

Lime mixed with water to a thin milk, should be dissolved by nitric acid with but little effervescence (limit of carbonate), and without leaving more than a slight residue of insoluble matter. Distilled water agitated with slaked lime should give the reactions mentioned under *Liquor Calcis.*

Preparations : Liquor Calcis. Potassa cum Calce. Syrupus Calcis.

CALX CHLORATA.

CHLORINATED LIME.

[Calx Chlorinata, *Pharm.*, 1870. Chloride of Lime.]

A compound resulting from the action of Chlorine upon Hydrate of Calcium, and containing at least 25 per cent. of available Chlorine.

Chloride of Lime should be preserved in well-closed vessels, in a cool and dry place.

A white or grayish-white, dry, or but slightly damp powder, or friable lumps, becoming moist and gradually decomposing on exposure to air, having a feeble, chlorine-like odor, and a disagreeable, saline taste. It is partially soluble in water and in alcohol. On dissolving Chlorinated Lime in diluted hydrochloric acid, chlorine gas is given off, and there should not remain more than a trifling amount of insoluble matter. Its solution in diluted acetic acid yields, with test-solution of oxalate of ammonium, a white precipitate soluble in hydrochloric acid. The aqueous solution quickly destroys the color of a dilute solution of litmus or of indigo.

If 0.71 Gm. of Chlorinated Lime be mixed with a solution of 1.25 Gm. of iodide of potassium in 120 C.c. of water, and 9 Gm. of diluted hydrochloric acid be then added, the red-brown liquid should require for complete decoloration not less than 50 C.c. of the volumetric solution of hyposulphite of sodium.

CALX SULPHURATA.

SULPHURATED LIME.

A mixture (commonly misnamed Sulphide of Calcium) consisting chiefly of Sulphide of Calcium [CaS ; 72. — CaS; 36] and Sulphate of Calcium [$CaSO_4$; 136. — CaO,SO_3 ; 68], in varying proportions, but containing not less than 36 per cent. of absolute Sulphide of Calcium.

Lime, in very fine powder, *one hundred parts*	100
Precipitated Sulphur, *ninety parts*	90

Mix the Lime and Sulphur intimately, pack the mixture with gentle pressure in a crucible so as nearly to fill it, and having luted down the cover, expose the crucible for one hour to a low red heat, by means of a charcoal fire so arranged that the upper part of the crucible shall be heated first. Then remove the crucible, allow it to cool, rub its contents to powder, and at once transfer the latter to small, glass-stoppered vials.

A grayish-white or yellowish-white powder, gradually altered by exposure to air, exhaling a faint odor of hydrosulphuric acid, having an offensive, alkaline taste and an alkaline reaction. Very slightly soluble in water and insoluble in alcohol. On dissolving Sulphurated Lime with the aid of acetic acid, hydrosulphuric acid is abundantly given off, and a white precipitate (sulphate of calcium) is thrown down. The filtrate yields, with test-solution of oxalate of ammonium, a white precipitate soluble in hydrochloric, but insoluble in acetic acid.

If 1 Gm. of Sulphurated Lime be gradually added to a boiling solution of 1.25 Gm. of sulphate of copper in 50 C.c. of water, the mixture digested on a water-bath for fifteen minutes, and filtered when cold, no color should be imparted to the filtrate by 1 drop of test-solution of ferrocyanide of potassium (presence of at least 36 per cent. of real Sulphide of Calcium).

CAMBOGIA.

GAMBOGE.

[GAMBOGIA, *Pharm.*, 1870.]

A gum-resin obtained from *Garcinia Hanburii* Hooker filius (Nat. Ord., *Guttiferæ*).

In cylindrical pieces, sometimes hollow in the center, one to two inches (25 to 50 millimeters) in diameter, longitudinally striate on the surface; fracture flattish-conchoidal, smooth, of a waxy lustre; orange-red or, in powder, bright yellow; inodorous; taste very acrid; the powder sternutatory.

Gamboge is partly soluble in alcohol and in ether; when triturated with water, it yields a yellow emulsion, and forms, with solution of potassa, an orange-red solution, from which, on the addition of hydrochloric acid, yellow resin is precipitated. Boiled with water, Gamboge yields a liquid which, after cooling, does not become green with test-solution of iodine (abs. of starch).

Preparation: Pilulæ Catharticæ Compositæ.

CAMPHORA.

CAMPHOR.

$C_{10}H_{16}O$; 152. — $C_{20}H_{16}O_2$; 152.

A stearopten derived from *Cinnamomum Camphora* F. Nees et Ebermaier (Nat. Ord., *Lauraceæ*), and purified by sublimation.

In white, translucent masses of a tough consistence and crystalline structure, readily pulverizable in the presence of a little alcohol, ether or chloroform. It has the sp. gr. 0.990–0.995, melts at 175° C. (347° F.), boils at 205° C. (401° F.), sublimes without residue, and burns with a luminous, smoky flame. It has a penetrating odor, and a pungent taste, dissolves readily in alcohol, ether, chloroform, disulphide of carbon, benzin, fixed and volatile oils, and is sparingly soluble in water.

Preparations: Aqua Camphoræ. Linimentum Camphoræ. Linimentum Saponis. Spiritus Camphoræ. Tinctura Opii Camphorata.

CAMPHORA MONOBROMATA.

MONOBROMATED CAMPHOR.

$C_{10}H_{15}BrO$; 230.8. — $C_{20}H_{15}BrO_2$; 230.8.

Colorless, prismatic needles or scales, permanent in the air and unaffected by light, having a mild, camphoraceous odor and taste, and a neutral reaction. Almost insoluble in water; freely soluble in alcohol, ether, chloroform, hot benzin, and fixed oils; slightly soluble in glycerin. When heated, Monobromated Camphor slowly volatilizes; at 65° C. (149° F.) it melts, and may be sublimed at a slightly higher temperature. At 274° C. (525° F.) it boils and is completely volatilized with partial decomposition. If boiled with test-solution of nitrate of silver, it is decomposed and yields bromide of silver amounting to 81.2 per cent. of the weight of Monobromated Camphor taken. It is soluble, without decomposition, in cold, concentrated sulphuric acid, and will again separate unaltered, if the solution be poured into water.

CANNABIS AMERICANA.

AMERICAN CANNABIS.

Cannabis sativa Linné (Nat. Ord., *Urticaceæ, Cannabineæ*), grown in the Southern United States and collected while flowering.

Stem about six feet (2 meters) long, rough; leaves opposite below, alternate above, petiolate, digitate; the leaflets linear-lanceolate, serrate; diœcious, the staminate flowers in pedunculate clusters forming compound racemes; the pistillate flowers axillary, sessile and bracteate; odor heavy; taste bitter, slightly acrid.

CANNABIS INDICA.

INDIAN CANNABIS.

[INDIAN HEMP.]

The flowering tops of the female plant of *Cannabis sativa* Linné (Nat. Ord., *Urticaceæ, Cannabineæ*), grown in the East Indies.

Branching, compressed, brittle, about two inches (5 centimeters) long, with a few digitate leaves, having linear-lanceolate leaflets, and numerous, sheathing, pointed bracts, each containing two small, pistillate flowers, sometimes with the nearly ripe fruit, the whole more or less agglutinated with a resinous exudation. It has a brownish color, a peculiar, narcotic odor, and a slightly acrid taste.

Preparations: Extractum Cannabis Indicæ. Extractum Cannabis Indicæ Fluidum. Tinctura Cannabis Indicæ.

CANTHARIS.

CANTHARIDES.

[SPANISH FLIES.]

Cantharis vesicatoria De Geer (Class, *Insecta*; Order, *Coleoptera*).

Cantharides should be kept in well-closed vessels, containing a little camphor.

About one inch (25 millimeters) long, and a quarter of an inch (6 millimeters) broad; with filiform antennæ, black in the upper part, and ample, membranous, transparent, brownish wings; elsewhere of a shining, coppery-green color; the powder is grayish-brown and contains green, shining particles; odor strong and disagreeable.

Preparations: Ceratum Cantharidis. Ceratum Extracti Cantharidis. Charta Cantharidis. Collodium cum Cantharide. Linimentum Cantharidis. Tinctura Cantharidis.

CAPSICUM.

CAPSICUM.

[CAYENNE PEPPER. AFRICAN PEPPER.]

The fruit of *Capsicum fastigiatum* Blume (Nat. Ord., *Solanaceæ*).

Conical, from half to three-quarters of an inch (12 to 18 millimeters) long, supported by a flattish, cup-shaped, five-toothed calyx, with a red, shining, membranous and translucent pericarp enclosing two cells, and containing flat, reniform, yellowish seeds attached to a thick, central placenta. It has a peculiar odor, and an intensely hot taste.

Preparations: Extractum Capsici Fluidum. Oleoresina Capsici. Tinctura Capsici.

CARBO ANIMALIS.

ANIMAL CHARCOAL.

Animal Charcoal prepared from bone.

Dull black, granular fragments, or a dull black powder, odorless and nearly tasteless, and insoluble in water or alcohol. When ignited, it leaves a white ash, amounting to at least 86 per cent. of the original weight, which should be completely soluble in hydrochloric acid, with the aid of heat.

Preparation: Carbo Animalis Purificatus.

CARBO ANIMALIS PURIFICATUS.

PURIFIED ANIMAL CHARCOAL.

Animal Charcoal, in No. 60 powder, *two parts*	2
Hydrochloric Acid, *three parts*	3
Water, *a sufficient quantity.*	

Pour the Hydrochloric Acid, previously mixed with *fifteen* (15) *parts* of Water, upon the Animal Charcoal, and digest the mixture on a water-bath, for twenty-four hours, occasionally stirring. Pour off the supernatant liquid, and digest the undissolved portion with *fifteen* (15) *parts* of Water for two hours. Transfer the mixture to a strainer, and, when the liquid portion has run off, wash the residue with Water until the washings cease to be affected by test-solution of nitrate of silver. Dry the product, heat it to dull redness in a closely covered crucible, and, when cool, keep it in well-stopped bottles.

A dull black powder, odorless and tasteless, and insoluble in water, alcohol or other solvents. When ignited at a high temperature with a little red oxide of mercury and with free access of air, it leaves at most only a trace of residue. If 1 part be digested with 2 parts of hydrochloric acid and 6 parts of water, the filtrate, after being supersaturated with water of ammonia, should remain unaffected by test-solution of magnesium (abs. of phosphate).

CARBO LIGNI.

CHARCOAL.

Charcoal prepared from soft wood.

CARBONEI BISULPHIDUM.

BISULPHIDE OF CARBON.

CS_2; 76. — CS_2; 38.

[DISULPHIDE OF CARBON.]

Bisulphide of Carbon should be kept in well-stopped bottles, in a cool place, remote from lights or fire.

A clear, colorless, highly refractive liquid, very diffusive, having a strong, characteristic odor, a sharp, aromatic taste, and a neutral reaction. It is insoluble in water; soluble in alcohol, ether, chloroform, and fixed or volatile oils. Sp. gr. 1.272. It vaporizes abundantly at ordinary temperatures, is highly inflammable, boils at 46° C. (114.8° F.), and, when ignited, burns with a blue flame, producing carbonic and sulphurous acids.

It should not affect the color of blue litmus paper moistened with water (abs. of sulphurous acid). A portion evaporated spontaneously in a glass vessel should leave no residue (sulphur). Test-solution of acetate of lead agitated with it should not be blackened (abs. of hydrosulphuric acid).

CARDAMOMUM.

CARDAMOM.

The fruit of *Elettaria Cardamomum* Maton (Nat. Ord., *Zingiberaceæ*).

Ovoid or oblong, from two-fifths to four-fifths of an inch (1 to 2 centimeters) long, obtusely triangular, rounded at the base, beaked, longitudinally striate; of a pale buff color, three-celled, with a thin, leathery, nearly tasteless pericarp and a central placenta. The seeds are reddish-brown, angular, transversely rugose, depressed at the hilum, surrounded by a thin, membranous arillus, and have an agreeable odor and a pungent, aromatic taste.

Preparations: Pulvis Aromaticus. Tinctura Cardamomi. Tinctura Cardamomi Composita.

CARUM.

CARAWAY.

The fruit of *Carum Carvi* Linné (Nat. Ord., *Umbelliferæ, Orthospermæ*).

Oblong, laterally compressed, about one-sixth of an inch (4 millimeters) long, usually separated into the two mericarps, and these curved, narrower at both ends, brown, with five yellowish, filiform ribs, and with six oil-tubes. It has an agreeable odor, and a sweetish, spicy taste.

CARYOPHYLLUS.

CLOVES.

The unexpanded flowers of *Eugenia caryophyllata* Thunberg (Nat. Ord., *Myrtaceæ*).

About half an inch (12 millimeters) long, dark-brown, consisting of a subcylindrical, solid and glandular calyx-tube, terminated by four teeth, and surmounted by a globular head, formed by four petals, which cover numerous, curved stamens and one style. Cloves emit oil, when scratched, and have a strong, aromatic odor, and a pungent, spicy taste.

CASCARILLA.

CASCARILLA.

The bark of *Croton Eluteria* Bennett (Nat. Ord., *Euphorbiaceæ*).

In quills or curved pieces, about one-twelfth of an inch (2 millimeters) thick, having a grayish, somewhat fissured, easily detached, corky layer, the remaining tissue being dull brown, and the inner surface smooth. It breaks with a short fracture, having a resinous and radially striate appearance; when burned, it emits a strong, aromatic odor; its taste is warm and very bitter.

CASSIA FISTULA.

CASSIA FISTULA.

[PURGING CASSIA.]

The fruit of *Cassia Fistula* Linné (Nat. Ord., *Leguminosæ, Cæsalpinieæ*).

Cylindrical, eighteen to twenty-four inches (45 to 60 centimeters) long, nearly one inch (25 millimeters) in diameter, blackish-brown, somewhat veined, the sutures smooth, forming two longitudinal bands; indehiscent; internally divided transversely into numerous cells, each containing a glossy seed imbedded in a blackish-brown, sweet pulp.

Preparation: Confectio Sennæ.

CASTANEA.

CASTANEA.

[CHESTNUT.]

The leaves of *Castanea vesca* Linné (Nat. Ord., *Cupuliferæ*), collected in September or October, while still green.

From six to ten inches (15 to 25 centimeters) long, about two inches (5 centimeters) wide, petiolate, oblong-lanceolate, acuminate, mucronate, feather-veined, sinuate-serrate, smooth; having a slight odor, and a somewhat astringent taste.

Preparation: Extractum Castaneæ Fluidum.

CATECHU.

CATECHU.

An extract prepared from the wood of *Acacia Catechu* Willdenow (Nat. Ord., *Leguminosæ, Mimoseæ*).

In irregular masses, containing fragments of leaves, dark brown, brittle, somewhat porous and glossy when freshly broken; soluble in alcohol and partly soluble in water. It is nearly inodorous and has a strongly astringent and sweetish taste.

Preparations: Tinctura Catechu Composita. Trochisci Catechu.

CAULOPHYLLUM.

CAULOPHYLLUM.

[BLUE COHOSH.]

The rhizome and rootlets of *Caulophyllum thalictroides* Michaux (Nat. Ord., *Berberidaceæ*).

Rhizome about four inches (10 centimeters) long, and about one-fourth to two-fifths of an inch (6 to 10 millimeters) thick, bent; on the upper side with broad, concave stem-scars and short, knotty branches; externally gray-brown, internally whitish, tough and woody. Rootlets numerous, matted, about four inches (10 centimeters) long, and one twenty-fifth of an inch (1 millimeter) thick, rather tough; nearly inodorous; taste sweetish, slightly bitter and somewhat acrid.

CERA ALBA.

WHITE WAX.

Yellow wax, bleached.

A yellowish-white solid, generally in form of circular cakes, about four inches (10 centimeters) in diameter, somewhat translucent in thin layers, having a slightly rancid odor and an insipid taste. It melts at about 65° C. (149° F.). Sp. gr. 0.965–0.975. In other respects it has the characteristics and answers to the tests mentioned under Yellow Wax (see *Cera Flava*).

Preparation: Ceratum. (Compound Cerates.)

CERA FLAVA.

YELLOW WAX.

A peculiar, concrete substance, prepared by *Apis mellifica* Linné (Class, *Insecta;* Order, *Hymenoptera*).

A yellowish or brownish-yellow solid, having an agreeable, honey-like odor, and a faint, balsamic taste. It is brittle when cold, but becomes plastic by the heat of the hand. It melts at 63°–64° C. (145.4°–147.2° F.), and congeals with a smooth and level surface. Sp. gr. 0.955 to 0.967. It is insoluble in water, but soluble in 35 parts of ether and in 11 parts of chloroform; also soluble in oil of turpentine, and in fixed or volatile oils. Cold alcohol dissolves it only partially, but it is almost completely soluble in boiling alcohol.

If 1 Gm. of Wax be boiled, for half an hour, with 40 Gm. of solution of soda (sp. gr. 1.180), the volume being preserved by the occasional addition of water, the Wax should separate, on cooling, without rendering the liquid opaque, and no precipitate should be produced in the filtered liquid by hydrochloric acid (abs. of fats or fatty acids, Japan wax, resin); nor should the same reagent produce a precipitate in water which has been boiled with a portion of the Wax (abs. of soap). If 5 Gm. of Wax be heated in a flask, for fifteen minutes, with 25 Gm. of sulphuric acid to 160° C. (320° F.), and the mixture diluted with water, no solid, wax-like body should separate (abs. of paraffin).

Preparations: Ceratum Resinæ. (Compound Cerates.) Unguentum.

CERATUM.

CERATE.

White Wax, *thirty parts*	30
Lard, *seventy parts*	70
To make *one hundred parts*	100

Melt them together, and stir the mixture constantly until cool.

CERATUM CAMPHORÆ.

CAMPHOR CERATE.

Camphor Liniment, *three parts*	3
Olive Oil, *twelve parts*	12
Cerate, *eighty-five parts*	85
To make *one hundred parts*	100

Mix the Camphor Liniment and the Olive Oil, and incorporate with the Cerate.

CERATUM CANTHARIDIS.

CANTHARIDES CERATE.

[BLISTERING CERATE.]

Cantharides, in No. 60 powder, *thirty-five parts*	35
Yellow Wax, *twenty parts*	20
Resin, *twenty parts*	20
Lard, *twenty-five parts*	25
To make *one hundred parts*	100

To the Wax, Resin and Lard, previously melted together and strained through muslin, add the Cantharides, and, by means of a water-bath, keep the mixture in a liquid state for half an hour, stirring occasionally. Then remove it from the water-bath, and stir constantly until cool.

Preparation: Emplastrum Picis cum Cantharide.

CERATUM CETACEI.

SPERMACETI CERATE.

Spermaceti, *ten parts*	10
White Wax, *thirty-five parts*	35
Olive Oil, *fifty-five parts*	55
To make *one hundred parts*	100

Melt together the Spermaceti and Wax; then add the Olive Oil, previously heated, and stir the mixture constantly until cool.

CERATUM EXTRACTI CANTHARIDIS.

CERATE OF EXTRACT OF CANTHARIDES.

Cantharides, in No. 60 powder, *thirty parts*	30
Resin, *fifteen parts*	15
Yellow Wax, *thirty-five parts*	35
Lard, *thirty-five parts*	35
Alcohol, *a sufficient quantity.*	

Moisten the Cantharides with *eighteen* (18) *parts* of Alcohol, and pack firmly in a cylindrical percolator; then gradually pour on Alcohol, until *one hundred and eighty* (180) *parts* of percolate are obtained, or until the Cantharides are exhausted. Distil off the Alcohol by means of a water-bath, transfer the residue to a tared capsule and evaporate it, on a water-bath, until it weighs *fifteen* (15) *parts*. Add to this the Resin, Wax and Lard, previously melted together, and keep the whole at a temperature of 100° C. (212° F.) for fifteen minutes. Lastly, strain the mixture through muslin, and stir it constantly until cool.

CERATUM PLUMBI SUBACETATIS.

CERATE OF SUBACETATE OF LEAD.

[GOULARD'S CERATE.]

Solution of Subacetate of Lead, *twenty parts*	20
Camphor Cerate, *eighty parts*	80
To make *one hundred parts*	100

Mix them thoroughly.

This Cerate should be freshly prepared, when wanted for use.

CERATUM RESINÆ.

RESIN CERATE.

[BASILICON OINTMENT.]

Resin, *thirty-five parts*	35
Yellow Wax, *fifteen parts*	15
Lard, *fifty parts*	50
To make *one hundred parts*	100

Melt them together at a moderate heat, strain the mixture through muslin, and allow it to cool without stirring.

Preparation: Linimentum Terebinthinæ.

CERATUM SABINÆ.

SAVINE CERATE.

Fluid Extract of Savine, *twenty-five parts*	25
Resin Cerate, *ninety parts*	90

Melt the Resin Cerate by means of a water-bath, add the Fluid Extract of Savine, and continue the heat until the alcohol has evaporated; then remove the heat, and stir constantly until cool.

CERII OXALAS.

OXALATE OF CERIUM.

$Ce_2(C_2O_4)_3.9H_2O$; 708. — $Ce_2O_3,3C_2O_3.9HO$; 354.

A white, slightly granular powder, permanent in the air, odorless and tasteless, insoluble in water or alcohol, but soluble in hydrochloric acid. On heating the salt to a dull red heat, a yellow or yellowish-red residue of oxide of cerium is left (a brown color would indicate the presence of oxide of didymium). On boiling the salt with solution of potassa, filtering, supersaturating a portion of the cold filtrate with acetic acid, and adding test-solution of chloride of calcium, a white precipitate is obtained, soluble in hydrochloric acid. The other portion of the filtrate should not yield a precipitate on the addition of an excess of test-solution of chloride of ammonium (aluminium), or of test-solution of sulphide of ammonium (zinc). On dissolving the salt in hydrochloric acid, no effervescence should occur (abs. of carbonate), and the solution should not be precipitated or rendered turbid by hydrosulphuric acid (abs. of metallic impurities).

CETACEUM.

SPERMACETI.

A peculiar, concrete, fatty substance, obtained from *Physeter macrocephalus* Linné (Class, *Mammalia ;* Order *Cetacea*).

White, somewhat translucent, slightly unctuous masses, of a scaly-crystalline fracture, a pearly lustre, becoming yellowish and rancid by exposure to air, odorless, having a mild, bland taste, and a neutral reaction. Sp. gr. about 0.945. It melts near 50° C. (122° F.) and congeals near 45° C. (113° F.). It is soluble in ether, chloroform, disulphide of carbon, and in boiling alcohol ; but slightly soluble in cold benzin.

Preparations : Ceratum Cetacei. Unguentum Aquæ Rosæ.

CETRARIA.

CETRARIA.

[ICELAND MOSS.]

Cetraria islandica Acharius (Nat. Ord., *Lichenes*).

From two to four inches (5 to 10 centimeters) long, foliaceous, with fringed and channeled lobes, brownish above, whitish beneath, brittle and inodorous ; when softened in water, cartilaginous, and having a slight odor ; its taste is mucilaginous and bitter.

It should be freed from pine leaves, mosses and other lichens, which are frequently found mixed with it.

Preparation : Decoctum Cetrariæ.

CHARTA CANTHARIDIS.

CANTHARIDES PAPER.

White Wax, *eight parts*	8
Spermaceti, *three parts*	3
Olive Oil, *four parts*	4
Canada Turpentine, *one part*	1
Cantharides, in No. 40 powder, *one part*	1
Water, *ten parts*	10

Mix all the substances in a tinned vessel, and boil gently for two hours, constantly stirring. Strain through a woolen strainer without expressing, and, by means of a water-bath, keep the mixture in a liquid state in a shallow, flat-bottomed vessel with an extended surface. Coat strips of sized paper with the melted plaster, on one side only, by passing them successively over the surface of the liquid; when dry, cut the strips into rectangular pieces.

CHARTA POTASSII NITRATIS.

NITRATE OF POTASSIUM PAPER.

Nitrate of Potassium, *twenty parts*	20
Distilled Water, *eighty parts*	80

Dissolve the Nitrate of Potassium in the Distilled Water. Immerse strips of white, unsized paper in the solution and dry them.

Keep the paper in securely closed vessels.

CHARTA SINAPIS.

MUSTARD PAPER.

Black Mustard, in No. 60 powder,
Benzin,
Solution of Gutta-Percha, each, *a sufficient quantity.*

Pack the Mustard tightly in a conical percolator, and gradually pour Benzin upon it until the percolate ceases to produce a permanent, greasy stain upon blotting paper. Remove the powder from the percolator, and dry it by exposure to the air. Then mix it with so much of Solution of Gutta-Percha as may be necessary to give it a semi-liquid consistence, apply the mixture, by means of a suitable brush, to one side of a piece of rather stiff, well sized paper, so as to cover it completely, and allow the surface to dry.

Each square inch (or 6.5 square centimeters) of paper should contain about *six* (6) *grains* or *forty* (40) *centigrammes* of Mustard.

Before being applied to the skin, the Mustard Paper should be dipped in warm water for about fifteen seconds.

CHELIDONIUM.

CHELIDONIUM.

[CELANDINE.]

Chelidonium majus Linné (Nat. Ord., *Papaveraceæ*).

Root several-headed, branching, red-brown; stem about twenty inches (50 centimeters) long, light green, hairy; leaves about six inches (15 centimeters) long, petiolate, the upper ones smaller and sessile, light green, on the lower side glaucous, lyrate-pinnatifid, the pinnæ ovate-oblong, obtuse, coarsely crenate or incised and the terminal one often three-lobed; flowers in small, long-peduncled umbels with two sepals and four yellow petals; capsule linear, two-valved and many-seeded. The fresh plant contains a saffron-colored milk-juice and has an unpleasant odor and acrid taste.

CHENOPODIUM.

CHENOPODIUM.

[AMERICAN WORMSEED.]

The fruit of *Chenopodium ambrosioides* Linné, var. *anthelminticum* Gray (Nat. Ord., *Chenopodiaceæ*).

Nearly one-twelfth of an inch (2 millimeters) in diameter, depressed-globular, glandular, dull greenish or brownish, the integuments friable, containing a lenticular, obtusely-edged, glossy, black seed. It has a peculiar, somewhat terebinthinate odor, and a bitterish, pungent taste.

CHIMAPHILA.

CHIMAPHILA.

[PIPSISSEWA.]

The leaves of *Chimaphila umbellata* Nuttall (Nat. Ord., *Ericaceæ*)

About two inches (5 centimeters) long, oblanceolate, sharply serrate above, wedge-shaped and nearly entire toward the base; coriaceous, smooth, and dark green on the upper surface. It is nearly inodorous, and has an astringent and bitterish taste.

Preparation: Extractum Chimaphilæ Fluidum.

CHINOIDINUM.

CHINOIDIN.

[QUINOIDIN.]

A mixture of alkaloids, mostly amorphous, obtained as a by-product in the manufacture of the crystallizable alkaloids from Cinchona.

A brownish-black, or almost black solid, breaking, when cold, with a resinous, shining fracture, becoming plastic when warmed, odorless, having a bitter taste and an alkaline reaction. Almost insoluble in water, freely soluble in alcohol, chloroform, and diluted acids; partially soluble in ether and in benzol. The solutions have a very bitter taste.

If Chinoidin be triturated with boiling water, the liquid, after filtration, should be clear and colorless, and should remain so on the addition of an alkali (abs. of alkaloidal salts). On ignition, Chinoidin should not leave more than 0.7 per cent. of ash.

CHIRATA.

CHIRATA.

Ophelia Chirata Grisebach (Nat. Ord., *Gentianaceæ*).

Root nearly simple, about three inches (75 millimeters) long; stem branched, nearly forty inches (1 meter) long, slightly quadrangular above; leaves opposite, sessile, ovate, entire, five-nerved; flowers numerous, small, with a four-lobed calyx and corolla; the whole plant smooth, pale brown, inodorous and intensely bitter.

Preparations: Extractum Chiratæ Fluidum. Tinctura Chiratæ.

CHLORAL.

CHLORAL.

$C_2HCl_3O.H_2O$; 165.2. — $C_4HCl_3O_2.2HO$; 165.2.

[HYDRATE OF CHLORAL.]

Chloral should be preserved in glass-stoppered bottles, in a cool and dark place.

Separate, rhomboidal, colorless and transparent crystals, slowly evaporating when exposed to the air, having an aromatic, penetrating and slightly acrid odor, a bitterish, caustic taste, and a neutral reaction. Freely soluble in water, alcohol, or ether; also soluble in 4 parts of chloroform, in glycerin, benzol, benzin, disulphide of carbon, fixed or volatile oils. It liquefies when mixed with carbolic acid or with camphor. Its aqueous solution soon acquires an acid reaction, but its alcoholic solution remains neutral. At about 58° C. (136° F.) it melts to a clear liquid of sp. gr. 1.575, which solidifies to a crystalline mass at a temperature between 35° and 50° C. (95° and 122° F.). At about 78° C. (172° F.) it begins to yield vapors of water and of anhydrous chloral, and it boils at 95° C. (203° F.). When dissolved in water and treated, while hot, with solution of potassa or of soda, or with water of ammonia, a vaporous, milky mixture of chloroform is obtained, with a formate in solution. If the addition of the water of ammonia be made in a test-tube, after adding a few drops of test-solution of nitrate of silver, a silver mirror will be obtained upon the glass. An aqueous solution, treated with test-solution of sulphide of ammonium, gives a reddish-brown precipitate.

Chloral should be dry, and should not readily attract moisture in ordinarily dry air; when dissolved in diluted alcohol it should not redden blue litmus paper (abs. of acids), nor be precipitated upon addition of a few drops of nitric acid, and of test-solution of nitrate of silver (abs. of hydrochloric acid). Warmed in contact with an equal volume of sulphuric acid, it liquefies, but should not blacken; and, when vaporized by heat, no residue should remain. It should not dissolve in less than 4 times its weight of chloroform at 15° C. (59° F.), (difference from alcoholate). A portion, in a test-tube, containing a fragment of broken glass, held in water nearly boiling, should boil at about 97° C. (206.6° F.), (difference from alcoholate which boils at 115° C. (239° F.), and evidence of due hydration). If 1 Gm. be dissolved in 2 C.c. of distilled water, the solution warmed, and about 8 C.c. (or a slight excess) of solution of potassa added, the mixture filtered clear through wet filter paper, and the filtrate treated with test-solution of iodine until it is yellowish; no yellow, crystalline precipitate (iodoform) should appear, even after standing half an hour (abs. of alcoholate of chloral).

CHLOROFORMUM PURIFICATUM.

PURIFIED CHLOROFORM.

$CHCl_3$; 119.2. — C_2HCl_3 ; 119.2.

Commercial Chloroform, *two hundred parts*	200
Sulphuric Acid, *forty parts*	40
Carbonate of Sodium, *ten parts*	10
Lime, in coarse powder, *one part*	1
Alcohol, *two parts*	2
Water, *twenty parts*	20

Add the Acid to the Chloroform and shake them together, occasionally, during twenty-four hours. Separate the lighter liquid and add to it the Carbonate of Sodium previously dissolved in the water. Agitate the mixture thoroughly for half an hour and set it aside; then separate the Chloroform from the supernatant layer, mix it with the Alcohol, transfer it to a dry retort, add the Lime, and, taking care that the temperature in the retort does not rise above 67.2° C. (153° F.), distil, by means of a water-bath, into a well-cooled receiver, until the residue in the retort is reduced to *two* (2) *parts.*

Keep the product in glass-stoppered bottles, in a cool and dark place.

A heavy, clear, colorless, diffusive liquid of a characteristic, pleasant, ethereal odor, a burning, sweet taste, and a neutral reaction. Soluble in about 200 parts of water, and, in all proportions, in alcohol or ether; also in benzol, benzin, fixed or volatile oils. Sp. gr. 1.485–1.490 at 15° C. (59° F.). It boils at 60° to 61° C. (140° to 142° F.), corresponding to the presence of three-fourths (¾) to one (1) per cent. of alcohol.

If 5 C.c. of Purified Chloroform be thoroughly agitated with 10 C.c. of distilled water, the latter, when separated, should not affect blue litmus paper (abs. of acids), nor test-solution of nitrate of silver (chloride), nor test-solution of iodide of potassium (free chlorine). If a portion be digested, warm, with solution of potassa, the latter should not become dark colored (abs. of aldehyde). On shaking 10 C.c. of the Chloroform with 5 C.c. of sulphuric acid, in a glass-stoppered bottle, and allowing them to remain in contact for twenty-four hours, no color should be imparted to either liquid. If a few C.c. be permitted to evaporate from blotting paper, no foreign odor should be perceptible after the odor of Chloroform ceases to be recognized.

Preparations: Mistura Chloroformi. Spiritus Chloroformi.

CHLOROFORMUM VENALE.

COMMERCIAL CHLOROFORM.

A liquid containing at least 98 per cent. of Chloroform. It should be kept in glass-stoppered bottles, in a cool place.

Commercial Chloroform has nearly the same sensible properties as Purified Chloroform (see *Chloroformum Purificatum*). Its sp. gr. should not be lower than 1.470.

If 1 C.c. be agitated with 20 C.c. of distilled water, the latter, when separated, should not render test-solution of nitrate of silver more than slightly turbid (limit of foreign chlorine compounds). When shaken with an equal volume of sulphuric acid, the subsiding, acid layer should not become quite black within twenty-four hours. A portion evaporated should leave no fixed residue.

Preparations: Chloroformum Purificatum. Linimentum Chloroformi.

CHONDRUS.

CHONDRUS.

[IRISH MOSS.]

Chondrus crispus Lyngbye, and *Chondrus mammilosus* Greville (Nat. Ord., *Algæ*).

Yellowish or white, horny, translucent; many-forked; when softened in water, cartilaginous; segments flat, wedge-shaped or linear; at the apex emarginate or two-lobed; it has a slight seaweed-odor, and a mucilaginous, somewhat saline taste. One part of it boiled for ten minutes with 30 parts of water, yields a solution which gelatinizes on cooling.

CHRYSAROBINUM.

CHRYSAROBIN.

A mixture of proximate principles (commonly misnamed Chrysophanic Acid), extracted from Goa-Powder, a substance found deposited in the wood of the trunk of *Andira Araroba* Aguiar (Nat. Ord., *Leguminosæ, Papilionaceæ*).

A pale orange-yellow, crystalline powder, permanent in the air, odorless and tasteless, almost insoluble in water, only slightly soluble in alcohol, readily soluble in ether and in boiling benzol. When heated to about 162° C. (323.6° F.), it melts, and may be partially sublimed. On ignition it is wholly dissipated. In solutions of alkalies it is soluble with a yellowish-red or reddish-yellow color, which is changed to red by passing air through the liquid. Sulphuric acid dissolves it with a deep blood-red color; on pouring the solution into water, the substance separates again unchanged.

Preparation: Unguentum Chrysarobini.

CIMICIFUGA.

CIMICIFUGA.

[BLACK SNAKEROOT.]

The rhizome and rootlets of *Cimicifuga racemosa* Elliott (Nat. Ord., *Ranunculaceæ*).

The rhizome is horizontal, hard, two inches (5 centimeters) or more long, about one inch (25 millimeters) thick, with numerous stout, upright or curved branches, terminated by a cup-shaped scar, and with numerous, wiry, brittle, obtusely quadrangular rootlets, about one-twelfth of an inch (2 millimeters) thick; the whole brownish-black, nearly inodorous, and having a bitter, acrid taste. Rhizome and branches have a smooth fracture, with a large pith, surrounded by numerous, sublinear, whitish wood-rays, and a thin, firm bark. The rootlets break with a short fracture, have a thick bark, and contain a ligneous cord branching into about four rays.

Preparations: Extractum Cimicifugæ Fluidum. Tinctura Cimicifugæ.

CINCHONA.

CINCHONA.

The bark of any species of *Cinchona* (Nat. Ord., *Rubiaceæ, Cinchoneæ*), containing at least 3 per cent. of its peculiar alkaloids.

Preparation: Infusum Cinchonæ.

ASSAY OF CINCHONA BARK.

I. *For Total Alkaloids.*

Cinchona, in No. 80 powder, and fully dried at 100° C. (212° F.), *twenty grammes*	**20**
Lime, *five grammes*	**5**
Diluted Sulphuric Acid,	
Solution of Soda,	
Alcohol,	
Distilled Water, each, *a sufficient quantity.*	

Make the Lime into a milk with 50 C.c. of Distilled Water, thoroughly mix therewith the Cinchona, and dry the mixture completely at a temperature not above 80° C. (176° F.). Digest the dried mixture with 200 C.c. of Alcohol, in a flask, near the temperature of boiling, for an hour. When cool, pour the mixture upon a filter of about six inches (15 centimeters) diameter. Rinse the flask and wash the filter with 200 C.c. of Alcohol, used in several portions, letting the filter drain after use of each portion. To the filtered liquid add enough Diluted Sulphuric Acid to render the liquid acid to test-paper. Let any resulting precipitate (sulphate of calcium) subside; then decant the liquid, in portions, upon a very small filter, and wash the residue and filter with small portions of Alcohol. Distil on evaporate the filtrate to expel all the Alcohol, cool, pass through a small filter, and wash the latter with Distilled Water slightly acidulated with Diluted Sulphuric Acid, until the washings are no longer made turbid by Solution of Soda. To the filtered liquid, concentrated to the volume of about 50 C.c., when nearly cool, add enough Solution of Soda to render it strongly alkaline. Collect the precipitate on a wetted filter, let it drain, and wash it with small portions of Distilled Water (using as little as possible), until the washings give but a slight turbidity with test-solution of chloride of barium. Drain the filter by laying it upon blotting or filter papers until it is nearly dry.

Detach the precipitate carefully from the filter and transfer it to a weighed capsule, wash the filter with Distilled Water acidulated with Diluted Sulphuric Acid, make the filtrate alkaline by Solution of Soda, and, if a precipitate result, wash it on a very small filter, let it drain well and transfer it to the capsule. Dry the contents of the latter at 100° C. (212° F.) to a constant weight, cool it in a desiccator and weigh. The number of grammes multiplied by *five* (5), equals the percentage of total alkaloids in the Cinchona.

II. *For Quinine.*

To the total alkaloids from 20 grammes of Cinchona, previously weighed, add Distilled Water acidulated with Diluted Sulphuric Acid, until the mixture remains for ten or fifteen minutes after digestion, just distinctly acid to test-paper. Transfer to a weighed beaker, rinsing with Distilled Water, and adding of this enough to make the whole weigh *seventy* (70) *times* the weight of the alkaloids. Add now, in drops, Solution of Soda previously well diluted with Distilled Water, until the mixture is exactly neutral to test-paper. Digest at 60° C. (140° F.) for five minutes, then cool to 15° C. (59° F.) and maintain at this temperature for half an hour. If crystals do not appear in the glass vessel, the total alkaloids do not contain quinine in quantity over *eight* (8) *per cent.* of their weight (corresponding to *nine* (9) *per cent.* of sulphate of quinine, crystallized). If crystals appear in the mixture, pass the latter through a filter not larger than necessary, prepared by drying two filter papers of two to three and a half inches (5 to 9 centimeters) diameter, trimming them to an equal weight, folding them separately, and placing one within the other so as to make a plain filter four-fold on each side. When the liquid has drained away, wash the filter and contents with Distilled Water of a temperature of 15° C. (59° F.), added in small portions, until the entire filtered liquid weighs *ninety* (90) *times* the weight of the alkaloids taken. Dry the filter, without separating its folds, at 60° C. (140° F.), to a constant weight, cool, and weigh the inner filter and contents, taking the outer filter for a counter-weight. To the weight of effloresced sulphate of quinine so obtained, add 11.5 per cent. of its amount (for water of crystallization), and add 0.12 per cent. of the weight of the entire filtered liquid (for solubility of the crystals at 15° C. or 59° F.). The sum in grammes, multiplied by *five* (5), equals the percentage of crystallized sulphate of quinine equivalent to the quinine in the Cinchona.

CINCHONA FLAVA.

YELLOW CINCHONA.

[CALISAYA BARK.]

The bark of the trunk of *Cinchona Calisaya* Weddell (Nat. Ord., *Rubiaceæ, Cinchoneæ*), containing at least 2 per cent. of quinine.

Yellow Cinchona of commerce is in flat pieces or in quills.

The flat pieces vary in length and width; are from one-sixth to two-fifths of an inch (4 to 10 millimeters) in thickness, almost entirely deprived of the brown, corky layer, compact, of a tawny-yellow color; outer surface marked with shallow, conchoidal depressions and intervening, rather sharp ridges; inner surface closely and finely striate; the transverse fracture showing numerous, very short and rigid, glistening fibres, which are radially arranged, and rarely in small groups. The powder has a light cinnamon-brown color, and a slightly aromatic but persistently bitter taste.

The quills are either single or double, varying in length from one-half to two inches (1 to 5 centimeters) in diameter; the bark is from one-sixteenth to one-eighth of an inch (1.5 to 3 millimeters) in thickness; it is covered with a grayish cork marked by longitudinal and transverse fissures, about one inch (25 millimeters) apart and forming irregular meshes with raised edges The inner surface is cinnamon-brown and finely striate from the bast-fibres.

The true Yellow Cinchona Bark should not be confounded with other Cinchona barks of a similar color, but having the bast-fibres in bundles or radial rows, and breaking with a splintery or coarsely fibrous fracture.

Preparations: Extractum Cinchonæ. Extractum Cinchonæ Fluidum. Tinctura Cinchonæ.

CINCHONA RUBRA.

RED CINCHONA.

[RED BARK.]

The bark of the trunk of *Cinchona succirubra* Pavon (Nat. Ord., *Rubiaceæ, Cinchoneæ*), containing at least 2 per cent. of quinine.

In quills and in flat or inflexed pieces, varying in length and width, and from one-eighth to one-half of an inch (3 to 12 millimeters) in thickness; compact; of a deep brown-red color; outer surface covered with numerous, suberous warts and ridges, or longitudinally and somewhat transversely fissured: inner surface rather coarsely striate; transverse fracture short-fibrous; the bast-fibres in interrupted, radial lines; the powder deep brown-red, slightly odorous, astringent and bitter.

Red Cinchona should not be confounded with other Cinchona barks, having an orange-red color, and breaking with a coarse, splintery fracture. Thin, quilled Red Cinchona of a light red-brown color should be rejected.

Preparation: Tinctura Cinchonæ Composita.

CINCHONIDINÆ SULPHAS.

SULPHATE OF CINCHONIDINE.

$(C_{20}H_{24}N_2O)_2H_2SO_4.3H_2O$; 768. — $(C_{20}H_{12}NO)_2.HO,SO_3.3HO$; 384.

The neutral sulphate of an alkaloid prepared from certain species of Cinchona, chiefly Red Cinchona.

White, silky, lustrous needles, or thin quadratic prisms, odorless, having a very bitter taste, and a neutral or faintly alkaline reaction. Soluble in 100 parts of water and in 71 parts of alcohol at 15 C. (59 F.), in 4 parts of boiling water, in 12 parts of boiling alcohol, freely in acidulated water and in 1000 parts of chloroform (the undissolved portions becoming gelatinous); very sparingly soluble in ether or benzol. At 100 C. (212 F.) the salt loses its water of crystallization. From a dilute aqueous solution the salt crystallizes with 13.13 per cent. (6 to 7 mol.) of water of crystallization; from a concentrated aqueous solution, with 7.03 per cent. (3 to 4 mol.). On ignition, the salt is dissipated without leaving a residue. The aqueous solution of the salt yields, on addition of water of ammonia, a white precipitate (Cinchonidine) which requires a large excess of ammonia to dissolve it, and which is soluble in about 75 times its weight of ether. With test-solution of iodide of mercury and potassium, the aqueous solution yields a curdy precipitate, and with test-solution of chloride of barium a white precipitate insoluble in hydrochloric acid.

The moderately dilute aqueous solution of the salt, acidulated with sulphuric acid, should not show more than a slight blue fluorescence (abs. of more than traces of sulphate of quinine or of quinidine). The salt should not be colored by the addition of sulphuric acid (abs. of foreign organic matters). If 1 Gm. be dried at 100° C. (212° F.) until it ceases to lose weight, the residue, cooled in a desiccator, should weigh not less than 0.92 Gm. If 0.5 Gm. of the salt be digested with 20 C.c. of cold distilled water, 0.5 Gm. of tartrate of potassium and sodium added, the mixture macerated, with frequent agitation, for one hour at 15° C. (59° F.), then filtered, and a drop of water of ammonia added to the filtrate, not more than a slight turbidity should appear (abs. of more than 0.5 per cent. of sulphate of cinchonine, or of more than 1.5 per cent. of sulphate of quinidine).

CINCHONINA.

CINCHONINE.

$C_{20}H_{24}N_2O$; 308. — $C_{20}H_{12}NO$; 154.

An alkaloid prepared from different species of Cinchona.

White, somewhat lustrous prisms or needles, permanent in the air, odorless, at first nearly tasteless, but developing a bitter after-taste, and having an alkaline reaction. Almost insoluble in cold or hot water, soluble in 110 parts of alcohol at 15° C. (59° F.), in 28 parts of boiling alcohol, 371 parts of ether, 350 parts of chloroform, and readily soluble in diluted acids, forming salts of a very bitter taste. At about 250° C. (482° F.) it melts and turns brown with partial sublimation. On ignition, the alkaloid is dissipated without leaving a residue.

A solution of the alkaloid in diluted sulphuric acid should not exhibit more than a faint blue fluorescence (abs. of more than traces of quinine or quinidine). On precipitating the alkaloid from this solution by water of ammonia, it is very sparingly dissolved by the latter (difference from and abs. of quinine), and requires at least 300 parts of ether for solution (difference from quinine, quinidine and cinchonidine). The salt should not be colored, or but very slightly colored, by the addition of sulphuric acid (abs. of foreign organic matters).

CINCHONINÆ SULPHAS.

SULPHATE OF CINCHONINE.

$(C_{20}H_{24}N_2O)_2H_2SO_4.2H_2O$; 750. — $(C_{20}H_{12}NO)_2.HO,SO_3.2HO$; 375.

[CINCHONIÆ SULPHAS, *Pharm.*, 1870.]

Hard, white, shining prisms of the clino-rhombic system, permanent in the air, odorless, having a very bitter taste and a neutral or faintly alkaline reaction. Soluble in about 70 parts of water and in 6 parts of alcohol at 15° C. (59° F.), in 14 parts of boiling water, 1.5 parts of boiling alcohol, 60 parts of chloroform, and easily so in diluted acids; insoluble in ether or benzol. At 100° C. (212° F.) the salt loses its water of crystallization, and at about 240° C. (464° F.) it melts with partial sublimation. On ignition, the salt is dissipated without leaving a residue. The aqueous solution of the salt yields a curdy precipitate with test-solution of iodide of mercury and potassium. With water of ammonia it yields a white precipitate (Cinchonine) which is very sparingly soluble in an excess of ammonia (difference from quinine), and not soluble in less than 300 parts of ether (difference from quinine, quinidine and cinchonidine). With test-solution of chloride of barium it yields a white precipitate insoluble in hydrochloric acid.

A moderately dilute solution of the salt, acidulated with sulphuric acid, should not show more than a faint blue fluorescence (abs. of more than traces of sulphate of quinine or of quinidine). If 1 Gm. be dried at 100° C. (212° F.), until it ceases to lose weight, the residue, cooled in a desiccator, should weigh not less than 0.952 Gm. If the salt, dried at a gentle heat, be macerated, for half an hour, with frequent agitation, with 70 times its weight of chloroform at 15° C. (59° F.), it should wholly, or almost wholly, dissolve (any more than traces of sulphate of quinine or sulphate of cinchonidine remaining undissolved). It should not be colored by contact with sulphuric acid (abs. of foreign organic matters).

CINNAMOMUM.

CINNAMON.

The inner bark of the shoots of *Cinnamomum zeylanicum* Breyne (Ceylon Cinnamon); or the bark of the shoots of one or more undetermined species of *Cinnamomum* grown in China (Chinese Cinnamon); (Nat. Ord., *Lauraceæ*).

Ceylon Cinnamon is in long, closely rolled quills, composed of eight or more layers of bark of the thickness of paper; pale yellowish-brown; outer surface smooth, marked with wavy lines; inner surface scarcely striate; fracture splintery; odor fragrant; taste sweet and warmly aromatic.

Chinese Cinnamon (Cassia Bark) is in quills about one twenty-fifth of an inch (1 millimeter) or more in thickness; nearly deprived of the corky layer; brown; outer surface somewhat rough; fracture nearly smooth; odor and taste analogous to that of Ceylon Cinnamon, but less delicate.

Preparations: Pulvis Aromaticus. Tinctura Cinnamomi.

COCCUS.

COCHINEAL.

The dried female of *Coccus cacti* Linné (Class, *Insecta;* Order, *Hemiptera*).

About one-fifth of an inch (5 millimeters) long; of a purplish-gray or purplish-black color; nearly hemispherical; somewhat oblong and angular in outline; flat or concave beneath; convex above; transversely wrinkled; easily pulverizable, yielding a dark-red powder. Odor faint; taste slightly bitterish. It contains a red coloring matter soluble in water, alcohol, or water of ammonia, slightly soluble in ether, insoluble in fixed and volatile oils. On macerating Cochineal in water, the insect swells up, but no insoluble powder should be separated.

CODEINA.

CODEINE.

$C_{18}H_{21}NO_3.H_2O$; 317. — $C_{36}H_{21}NO_6.2HO$; 317.

An alkaloid prepared from Opium.

White, or yellowish-white, more or less translucent, rhombic prisms, somewhat efflorescent in warm air, odorless, having a slightly bitter taste and an alkaline reaction. Soluble in 80 parts of water at 15° C. (59° F.) and in 17 parts of boiling water; very soluble in alcohol and in chloroform; also soluble in 6 parts of ether and in 10 parts of benzol, but almost insoluble in benzin. When heated to 120° C. (248° F.), Codeine loses its water of crystallization. At about 150° C. (302° F.) it melts, and, on ignition, it is completely dissipated. Codeine is dissolved by sulphuric acid containing 1 per cent. of molybdate of sodium, to a liquid having, at first, a dirty green color, which, after a while, becomes pure blue and gradually fades, within a few hours, to pale yellow. On dissolving Codeine in sulphuric acid, a colorless liquid results, which, on the addition of a trace of ferric chloride, and gentle warming, becomes deep blue. An aqueous solution of Codeine, added to test-solution of mercuric chloride, should produce no precipitate; and if Codeine be added to nitric acid of sp. gr. 1.200, it will dissolve to a yellow liquid which should not become red (difference from and abs. of morphine).

COLCHICI RADIX.

COLCHICUM ROOT.

The corm of *Colchicum autumnale* Linné (Nat. Ord., *Melanthaceæ*).

About one inch (25 millimeters) long, ovoid, flattish and with a groove on one side; externally brownish and wrinkled; internally white and solid; often in transverse slices, reniform in shape, and breaking with a short, mealy fracture; inodorous; taste sweetish, bitter and acrid.

Colchicum root, which is very dark colored internally, or breaks with a horny fracture, should be rejected.

Preparations: Extractum Colchici Radicis. Extractum Colchici Radicis Fluidum. Vinum Colchici Radicis.

COLCHICI SEMEN.

COLCHICUM SEED.

The seed of *Colchicum autumnale* Linné (Nat. Ord., *Melanthaceæ*).

Sub-globular, about one-twelfth of an inch (2 millimeters) thick, very slightly pointed at the hilum; reddish-brown, pitted, internally whitish; very hard and tough; inodorous; bitter and somewhat acrid.

Preparations: Extractum Colchici Seminis Fluidum. Tinctura Colchici Seminis. Vinum Colchici Seminis.

COLLODIUM.

COLLODION.

Pyroxylin, *four parts*	4
Stronger Ether, *seventy parts*	70
Alcohol, *twenty-six parts*	26
To make *one hundred parts*	100

To the Pyroxylin, contained in a tared bottle, add the Alcohol and let it stand for fifteen minutes; then add the Ether, and shake the mixture until the Pyroxylin is dissolved. Cork the bottle well and set it aside until the liquid has become clear. Then decant it from any sediment which may have formed and transfer it to bottles, which should be securely corked.

Keep the Collodion in a cool place, remote from lights or fire.

Preparations: Collodium Flexile. Collodium Stypticum.

COLLODIUM CUM CANTHARIDE.

COLLODION WITH CANTHARIDES.

[CANTHARIDAL COLLODION.]

Cantharides, in No. 60 powder, *sixty parts*.	60
Flexible Collodion, *eighty-five parts*.	85
Commercial Chloroform, *a sufficient quantity*.	

Pack the powder firmly in a cylindrical percolator, and gradually pour Commercial Chloroform upon it, until *two hundred and fifty* (250) *parts* of tincture are obtained, or until the Cantharides are exhausted. Recover, by distillation on a water-bath, about *two hundred* (200) *parts* of the Chloroform, and evaporate the residue in a capsule, by means of a water-bath, until it weighs *fifteen* (15) *parts*. Dissolve this in the Flexible Collodion, and let it stand at rest for forty eight hours. Finally, pour off the clear portion from any sediment which may have been deposited, and transfer it to bottles, which should be securely corked.

Keep the Cantharidal Collodion in a cool place, remote from lights or fire.

COLLODIUM FLEXILE.

FLEXIBLE COLLODION.

Collodion, *ninety-two parts*	92
Canada Turpentine, *five parts*	5
Castor Oil, *three parts*	3
To make *one hundred parts*	100

Mix them and keep the mixture in a well corked bottle, in a cool place, remote from lights or fire.

COLLODIUM STYPTICUM.

STYPTIC COLLODION.

Tannic Acid, *twenty parts*	20
Alcohol, *five parts*	5
Stronger Ether, *twenty parts*	20
Collodion, *fifty-five parts*	55
To make *one hundred parts*	100

Place the Tannic Acid in a tared bottle, add the Alcohol, Ether, and Collodion, and agitate until the Tannic Acid is dissolved.

Keep the product in well corked bottles, in a cool place, remote from lights or fire.

COLOCYNTHIS.

COLOCYNTH.

The fruit of *Citrullus Colocynthis* Schrader (Nat. Ord., *Cucurbitaceæ*), deprived of its rind.

From two to four inches (5 to 10 centimeters) in diameter; globular; white or yellowish-white; light; spongy; readily breaking into three wedge-shaped pieces, each containing, near the rounded surface, many flat, ovate, brown seeds; inodorous; taste intensely bitter.

Hard and dark colored Colocynth should be rejected. The pulp, when used, should be deprived of the seeds.

Preparation: Extractum Colocynthidis.

CONFECTIO ROSÆ.

CONFECTION OF ROSE.

Red Rose, in No. 60 powder, *eight parts*	8
Sugar, in fine powder, *sixty-four parts*	64
Clarified Honey, *twelve parts*	12
Rose Water, *sixteen parts*	16
To make *one hundred parts*	100

Rub the Red Rose with the Rose Water heated to 65° C. (149° F.), then gradually add the Sugar and Honey, and beat the whole together until thoroughly mixed.

CONFECTIO SENNÆ.

CONFECTION OF SENNA.

Senna, in No. 60 powder, *ten parts*	10
Coriander, in No. 40 powder, *six parts*	6
Cassia Fistula, bruised, *sixteen parts*	16
Tamarind, *ten parts*	10
Prune, sliced, *seven parts*	7
Fig, bruised, *twelve parts*	12
Sugar, in fine powder, *fifty parts*	50
Water, *sixty parts*	60
To make *one hundred parts*	100

Place the Cassia Fistula, Tamarind, Prune, and Fig in a close vessel with *forty-five* (45) *parts* of the Water, and digest for three hours, by means of a water-bath. Separate the coarser portions with the hand, and rub the pulpy mass, first through a coarse hair sieve, and then through a fine one, or through a muslin cloth. Mix the residue with the remainder of the Water, and, having digested the mixture for a short time, treat it as before, and add the product to the pulpy liquid first obtained. Then, by means of a water-bath, dissolve the Sugar in the pulpy liquid, and evaporate the whole until it weighs *eighty four* (84) *parts*. Lastly, add the Senna and Coriander, and incorporate them thoroughly with the other ingredients while yet warm.

CONIUM.

CONIUM.

[HEMLOCK.]

The full grown fruit of *Conium maculatum* Linné (Nat. Ord., *Umbelliferæ, Campylospermæ*), gathered while yet green.

About one-eighth of an inch (3 millimeters) long; broadly ovate; laterally compressed; gray-green; often divided into the two mericarps, each with five crenate ribs, without oil-tubes, and containing a seed which is grooved on the face; odor and taste slight. When triturated with solution of potassa, Conium gives off a strong, disagreeable odor.

Preparations: Abstractum Conii. Extractum Conii Alcoholicum. Extractum Conii Fluidum. Tinctura Conii.

COPAIBA.

COPAIBA.

[BALSAM OF COPAIBA.]

The oleoresin of *Copaifera Langsdorffii* Desfontaines, and of other species of *Copaifera* (Nat. Ord., *Leguminosæ, Papilionaceæ*).

A transparent or translucent, more or less viscid liquid, of a color varying from pale yellow to brownish-yellow; having a peculiar, aromatic odor and a persistently bitter and acrid taste. Sp. gr. 0.940–0.993. It is readily soluble in absolute alcohol. It is not fluorescent, and when heated to 130° C. (266° F.), does not become gelatinous. When subjected to heat, it does not evolve the odor of turpentine, and, after distilling off the volatile oil, the residue, when cool, should be hard and friable (abs. of fixed oils). The essential oil distilled off from the oleoresin, when rectified, should not begin to boil below 200° C. (392° F.). On adding 1 drop of Copaiba to 19 drops of disulphide of carbon and shaking the mixture with 1 drop of a cold mixture of equal parts of sulphuric and nitric acids, it should not acquire a purplish-red or violet color (abs. of gurjun balsam).

Preparation: Massa Copaibæ.

CORIANDRUM.

CORIANDER.

The fruit of *Coriandrum sativum* Linné (Nat. Ord., *Umbelliferæ, Cœlospermæ*).

Globular ; about one-sixth of an inch (4 millimeters) in diameter ; crowned with the calyx-teeth ; brownish-yellow, with slight, longitudinal ridges ; the two mericarps cohering, enclosing a lenticular cavity, and each furnished on the face with two oil-tubes ; odor and taste agreeably aromatic.

CORNUS.

CORNUS.

[DOGWOOD.]

The bark of the root of *Cornus florida* Linné (Nat. Ord., *Cornaceæ*).

In curved pieces of various sizes, about one-eighth of an inch (3 millimeters) thick ; deprived of the furrowed, brown-gray, corky layer ; outer and inner surface pale-reddish, or light reddish-brown, striate ; transverse and longitudinal fracture short, whitish, with brown, yellow striæ ; inodorous ; astringent and bitter.

Preparation : Extractum Cornus Fluidum.

CREASOTUM.

CREASOTE.

A product of the distillation of Wood Tar.

An almost colorless or yellowish, strongly refractive, oily liquid, turning to reddish-yellow or brown by exposure to light, having a penetrating, smoky odor, a burning, caustic taste and a neutral reaction. Sp. gr. 1.035–1.085. It begins to boil near 200° C. (392° F.), and most of it distils over between 205° and 220° C. (401°–428° F.). When cooled to —20° C. (—4° F.) it becomes thick, but does not solidify. It is inflammable, burning with a luminous, smoky flame. Creasote is soluble in about 80 parts of water at 15° C. (59° F.) to a somewhat turbid liquid, and in 12 parts of boiling water ; it dissolves, in all proportions, in absolute alcohol, ether, chloroform, benzin, disulphide of carbon or acetic acid. When applied to the skin, it produces a white stain.

Creasote does not coagulate albumen or collodion (difference from carbolic acid). If 1 volume of Creasote be mixed with 1 volume of glycerin, a nearly clear mixture will result, from which the Creasote will be separated by the addition of 1 or more volumes of water. On adding to 10 C.c. of a 1 per cent. aqueous solution of Creasote, 1 drop of test-solution of ferric chloride, the liquid acquires a violet-blue tint, which rapidly changes to greenish and brown, with formation, usually, of a brown precipitate (difference from carbolic acid).

Preparation : Aqua Creasoti.

CRETA PRÆPARATA.

PREPARED CHALK.

Native, friable Carbonate of Calcium [$CaCO_3$; 100. — CaO,CO_2 ; 50], freed from most of its impurities by elutriation.

A white, amorphous powder, generally agglutinated in form of small cones, permanent in the air, odorless and tasteless, and insoluble in water or alcohol. It is soluble in hydrochloric, nitric or acetic acid with copious effervescence, and without leaving more than a trifling residue. By exposure to a red heat, the salt loses carbonic acid gas, and the residue has an alkaline reaction. A neutral solution of the salt in acetic acid yields, with test-solution of oxalate of ammonium, a white precipitate soluble in hydrochloric, but insoluble in acetic acid. Another portion of the same solution should yield no precipitate with test-solution of sulphate of calcium (abs. of barium, strontium). On adding to another portion of the solution, first, chloride of ammonium, then carbonate of ammonium and water of ammonia in slight excess, and gently warming, the filtrate separated from the resulting precipitate should not be rendered more than faintly turbid by test-solution of phosphate of sodium (limit of magnesium). Another portion of the solution should not assume more than a slightly bluish tint with a few drops of test-solution of ferrocyanide of potassium (limit of iron).

Preparations: Hydrargyrum cum Creta. Pulvis Cretæ Compositus. Trochisci Cretæ.

CROCUS.

SAFFRON.

The stigmas of *Crocus sativus* Linné (Nat. Ord., *Iridaceæ*).

Separate, or three, attached to the top of the style, about an inch and a quarter (3 centimeters) long, flattish-tubular, almost thread-like, broader and notched above; orange-brown: odor strong, peculiar, aromatic; taste bitterish and aromatic. When chewed it tinges the saliva deep orange-yellow.

Saffron should not be mixed with the yellow styles. When pressed between filtering paper, it should not leave an oily stain. When soaked in water, it colors the liquid orange-yellow, and should not deposit any pulverulent mineral matter, nor show the presence of organic substances differing in shape from that described.

Preparation: Tinctura Croci.

CUBEBA.

CUBEB.

The unripe fruit of *Cubeba officinalis* Miquel (Nat. Ord., *Piperaceæ*).

Globular, about one-sixth of an inch (4 millimeters) in diameter, contracted at the base into a stipe nearly a quarter of an inch (6 millimeters) long, reticulately wrinkled, blackish-gray, internally whitish and hollow; odor strong, spicy; taste aromatic and pungent.

Cubeb should not be mixed with the nearly inodorous rachis or stalks.

Preparations: Extractum Cubebæ Fluidum. Oleoresina Cubebæ. Tinctura Cubebæ.

CUPRI ACETAS.

ACETATE OF COPPER.

$Cu(C_2H_3O_2)_2.H_2O$; 199.2. — $CuO,C_4H_3O_3.HO$; 99.6.

Deep green, prismatic crystals, yielding a bright green powder, efflorescent on exposure to air, odorless, having a nauseating, metallic taste and an acid reaction. Soluble in 15 parts of water and in 135 parts of alcohol at 15° C. (59° F.), in 5 parts of boiling water and in 14 parts of boiling alcohol. When heated above 100° C. (212° F.), the salt loses its water of crystallization, and at a temperature above 200° C. (392° F.), it is gradually decomposed. The aqueous solution of the salt has a bluish-green color, which is rendered deep blue by an excess of ammonia. On heating the salt with sulphuric acid, acetous vapors are evolved.

If the aqueous solution of the salt be treated with hydrosulphuric acid until all the copper is precipitated, the filtrate should leave no residue on evaporation (alkalies, alkaline earths and iron). If the aqueous solution be heated to boiling with solution of soda in excess, it will yield a filtrate which should not be clouded by hydrosulphuric acid (abs. of lead, zinc).

CUPRI SULPHAS.

SULPHATE OF COPPER.

$CuSO_4.5H_2O$; 249.2. — $CuO,SO_3.5HO$; 124.6.

Large, translucent, deep blue, triclinic crystals, efflorescent, odorless, having a nauseous, metallic taste and an acid reaction. Soluble in 2.6 parts of water at 15° C. (59° F.), in 0.5 part of boiling water, and insoluble in alcohol. When heated to 100° C. (212° F.), the salt gradually loses 28.9 per cent. of its weight. At a temperature of about 230° C. (446° F.) it becomes anhydrous, and at a red heat it is decomposed, evolving sulphurous vapors and finally leaving black cupric oxide. The aqueous solution of the salt has a pale blue color, which is rendered deep blue by an excess of ammonia. With test-solution of chloride of barium it yields a white precipitate insoluble in hydrochloric acid.

If a little hydrochloric and some diluted sulphuric acid be added to a 5 per cent. aqueous solution of the salt, and this be treated with hydrosulphuric acid until the copper is completely precipitated, the filtrate should leave no residue on evaporation (foreign metals, alkalies and alkaline earths).

CYDONIUM.

CYDONIUM.

[QUINCE SEED.]

The seed of *Cydonia vulgaris* Persoon (Nat. Ord., *Rosaceæ, Pomeæ*).

About a quarter of an inch (6 millimeters) long, oval or oblong, triangularly compressed, brown, covered with a whitish, mucilaginous epithelium, causing the seeds of each cell to adhere. With water the seeds swell up, and form a mucilaginous mass. The unbroken seeds have an insipid taste.

Preparation: Mucilago Cydonii.

CYPRIPEDIUM.

CYPRIPEDIUM.

[LADIES' SLIPPER.]

The rhizome and rootlets of *Cypripedium pubescens* Willdenow, and of *Cypripedium parviflorum* Salisbury (Nat. Ord., *Orchidaceæ*).

Horizontal, bent, four inches (10 centimeters) or less, long; about one-eighth of an inch (3 millimeters) thick; on the upper side beset with numerous, circular, cup-shaped scars; closely covered below with simple, wiry rootlets varying from four to twenty inches (10 to 50 centimeters) in length; brittle, dark brown, or orange-brown; fracture short, white; odor faint but heavy; taste sweetish, bitter and somewhat pungent.

Preparation: Extractum Cypripedii Fluidum.

DECOCTA.

DECOCTIONS.

An ordinary Decoction, the strength of which is not directed by the physician, nor specified by the Pharmacopœia, shall be prepared by the following formula:

Take of

The Substance, coarsely comminuted, *ten parts*	10
Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Put the Substance into a suitable vessel, provided with a cover, pour upon it *one hundred* (100) *parts* of cold Water, cover it well, and boil for fifteen minutes; then let it cool to about 45° C. (113° F.), strain the liquid, and pass through the strainer enough cold Water to make the product weigh *one hundred* (100) *parts*.

Caution.—The strength of Decoctions of energetic or powerful substances should be specially prescribed by the physician.

DECOCTUM CETRARIÆ.

DECOCTION OF CETRARIA.

Cetraria, *five parts*	5
Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Cover the Cetraria, in a suitable vessel, with *forty* (40) *parts* of cold Water, express after half an hour, and throw away the liquid. Then boil the Cetraria with *one hundred* (100) *parts* of Water for half an hour, strain, and add enough cold Water, through the strainer, to make the product weigh *one hundred* (100) *parts.*

DECOCTUM SARSAPARILLÆ COMPOSITUM.

COMPOUND DECOCTION OF SARSAPARILLA.

Sarsaparilla, cut and bruised, *ten parts*	10
Sassafras, in No. 20 powder, *two parts*	2
Guaiacum Wood, rasped, *two parts*	2
Glycyrrhiza, bruised, *two parts*	2
Mezereum, cut and bruised, *one part*	1
Water, *a sufficient quantity,*	
To make *one hundred parts*	100

Boil the Sarsaparilla and Guaiacum Wood for half an hour in a suitable vessel with *one hundred* (100) *parts* of Water; then add the Sassafras, Glycyrrhiza, and Mezereum, cover the vessel well and macerate for two hours; finally strain, and add enough cold Water, through the strainer, to make the product weigh *one hundred* (100) *parts.*

DIGITALIS.

DIGITALIS.

[FOXGLOVE.]

The leaves of *Digitalis purpurea* Linné (Nat. Ord., *Scrophulariaceæ*), collected from plants of the second year's growth.

From four to twelve inches (10 to 30 centimeters) long, ovate-oblong, narrowed into a petiole; crenate, downy; dull green and wrinkled above; paler and reticulate beneath; midrib near the base broad; odor faint, tea-like; taste bitter, nauseous.

Preparations: Abstractum Digitalis. Extractum Digitalis. Extractum Digitalis Fluidum. Infusum Digitalis. Tinctura Digitalis.

DULCAMARA.

DULCAMARA.

[BITTERSWEET.]

The young branches of *Solanum Dulcamara* Linné (Nat. Ord., *Solanaceæ*).

About a quarter of an inch (6 millimeters) or less, thick, cylindrical, somewhat angular, longitudinally striate, more or less warty, usually hollow in the centre, cut into short sections. The thin bark is externally pale greenish, or light greenish-brown, marked with alternate leaf-scars, and internally green; the greenish or yellowish wood forms one or two concentric rings. Odor slight; taste bitter, afterwards sweet.

Preparation: Extractum Dulcamaræ Fluidum.

ELATERINUM.

ELATERIN.

$C_{20}H_{28}O_5$; 348. — $C_{40}H_{28}O_{10}$; 348.

A neutral principle extracted from Elaterium, a substance deposited by the juice of the fruit of *Ecballium Elaterium* A. Richard (Nat. Ord., *Cucurbitaceæ*).

Small, colorless, shining, hexagonal scales or prisms, permanent in the air, odorless, having a bitter, somewhat acrid taste and a neutral reaction. Insoluble in water; soluble in 125 parts of alcohol at 15° C. (59° F.); in 2 parts of boiling alcohol, in 290 parts of ether, and also in solutions of the alkalies, from which it is precipitated by supersaturating with an acid. When heated to 200° C. (392° F.), the crystals turn yellow and melt; on ignition they are wholly dissipated. A solution of Elaterin in cold, concentrated sulphuric acid assumes a yellow color gradually changing to red.

The alcoholic solution should not be precipitated by tannic acid nor by salts of mercury or of platinum (abs. of, and difference from alkaloids).

Preparation: Trituratio Elaterini.

ELIXIR AURANTII.

ELIXIR OF ORANGE.

[Simple Elixir.]

Oil of Orange Peel, *one part*	1
Cotton, *two parts*	2
Sugar, in coarse powder, *one hundred parts*	100
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *three hundred parts*	300

Mix Alcohol and Water in the proportion of *one* (1) *part* of Alcohol to *three* (3) *parts* of Water. Add the Oil of Orange to the Cotton, in small portions at a time, distributing it thoroughly by picking the Cotton apart after each addition; then pack tightly in a conical percolator, and gradually pour on the mixture of Alcohol and Water, until *two hundred* (200) *parts* of filtered liquid are obtained. In this liquid dissolve the Sugar by agitation, without heat, and strain.

EMPLASTRUM AMMONIACI.

AMMONIAC PLASTER.

Ammoniac, *one hundred parts*	100
Diluted Acetic Acid, *one hundred and forty parts*	140

Digest the Ammoniac in the Diluted Acetic Acid, in a suitable vessel, avoiding contact with metals, until it is entirely emulsionized; then strain, and evaporate the strained liquid, by means of a water-bath, stirring constantly, until a small portion, taken from the vessel, hardens on cooling.

EMPLASTRUM AMMONIACI CUM HYDRARGYRO.

AMMONIAC PLASTER WITH MERCURY.

Ammoniac, *seven hundred and twenty parts*	720
Mercury, *one hundred and eighty parts*	180
Olive Oil, *eight parts*	8
Sublimed Sulphur, *one part*	1
Diluted Acetic Acid, *one thousand parts*	1000
Lead Plaster, *a sufficient quantity,*	
To make *one thousand parts*	1000

Digest the Ammoniac in the Diluted Acetic Acid, in a suitable vessel, avoiding contact with metals, until it is entirely emulsionized; then strain, and evaporate the strained liquid by means of a water-bath, stirring constantly, until a small portion, taken from the vessel, hardens on cooling. Heat the Olive Oil, and gradually add the Sulphur, stirring constantly until they unite; then add the Mercury, and triturate until globules of the metal cease to be visible. Next add, gradually, the Ammoniac, while yet hot; and finally, having added enough Lead Plaster, previously melted by means of a water-bath, to make the mixture weigh *one thousand* (1000) *parts,* mix the whole thoroughly.

EMPLASTRUM ARNICÆ.

ARNICA PLASTER.

Extract of Arnica Root, *fifty parts*	50
Resin Plaster, *one hundred parts*	100

Add the Extract to the Plaster, previously melted by means of a water-bath, and mix them thoroughly.

EMPLASTRUM ASAFŒTIDÆ.

ASAFETIDA PLASTER.

Asafetida, *thirty-five parts*	35
Lead Plaster, *thirty-five parts*	35
Galbanum, *fifteen parts*	15
Yellow Wax, *fifteen parts*	15
Alcohol, *one hundred and twenty parts*	120

Digest the Asafetida and Galbanum with the Alcohol on a water-bath, separate the liquid portion, while hot, from the coarser impurities by straining, and evaporate it to the consistence of honey; then add the Lead Plaster and the Wax, previously melted together, stir the mixture well, and evaporate to the proper consistence.

EMPLASTRUM BELLADONNÆ.

BELLADONNA PLASTER.

Belladonna Root, in No. 60 powder, *one hundred parts*	100
Alcohol,	
Resin Plaster, each, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the powder with *forty* (40) *parts* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Belladonna Root is exhausted. Reserve the first *ninety* (90) *parts* of the percolate; evaporate the remainder, at a temperature not exceeding 50° C. (122° F.), to *ten* (10) *parts*, mix this with the reserved portion and evaporate, at or below the above-mentioned temperature, to a soft, uniform extract. Add to this enough Resin Plaster, previously melted, to make the whole weigh *one hundred* (100) *parts*, and mix thoroughly.

EMPLASTRUM CAPSICI.

CAPSICUM PLASTER.

Resin Plaster,
Oleoresin of Capsicum, each, *a sufficient quantity*.

Melt the Resin Plaster at a gentle heat, spread a thin and even layer of it upon muslin, and allow it to cool. Then having cut off a piece of the required size, apply a thin coating of Oleoresin of Capsicum, by means of a brush, leaving a narrow, blank margin along the edges.

A space of four (4) inches or ten (10) centimeters square, should contain *four* (4) *grains*, or *twenty-five* (25) *centigrammes* of Oleoresin of Capsicum.

EMPLASTRUM FERRI.

IRON PLASTER.

[STRENGTHENING PLASTER.]

Hydrated Oxide of Iron, dried at a temperature not exceeding 80° C. (176° F.), *ten parts*	10
Canada Turpentine, *ten parts*	10
Burgundy Pitch, *ten parts*	10
Lead Plaster, *seventy parts*	70
To make *one hundred parts*	100

Melt the Lead Plaster, Canada Turpentine, and Burgundy Pitch by means of a water-bath; then add the Oxide of Iron, and stir constantly until the mixture thickens on cooling.

EMPLASTRUM GALBANI.

GALBANUM PLASTER.

Galbanum, *sixteen parts*	16
Turpentine, *two parts*	2
Burgundy Pitch, *six parts*	6
Lead Plaster, *seventy-six parts*	76
To make *one hundred parts*	100

To the Galbanum and Turpentine, previously melted together and strained, add, first, the Burgundy Pitch, then the Lead Plaster, melted over a gentle fire, and mix the whole thoroughly.

EMPLASTRUM HYDRARGYRI.

MERCURIAL PLASTER.

Mercury, *thirty parts*	30
Olive Oil, *ten parts*	10
Resin, *ten parts*	10
Lead Plaster, *fifty parts*	50
To make *one hundred parts*	100

Melt the Olive Oil and Resin together, and, when the mixture has become cool, rub the Mercury with it until globules of the metal cease to be visible. Then gradually add the Lead Plaster, previously melted, and mix the whole thoroughly.

EMPLASTRUM ICHTHYOCOLLÆ.

ISINGLASS PLASTER.

[Court Plaster.]

Isinglass, *ten parts*	10
Alcohol, *forty parts*	40
Glycerin, *one part*	1
Water,	
Tincture of Benzoin, each, *a sufficient quantity.*	

Dissolve the Isinglass in a sufficient quantity of hot Water to make the solution weigh *one hundred and twenty* (120) *parts*. Spread one-half of this, in successive layers, upon taffeta (stretched on a level surface), by means of a brush, waiting after each application until the layer is dry. Mix the second half of the Isinglass solution with the Alcohol and Glycerin, and apply it in the same manner. Then reverse the taffeta, coat it on the back with Tincture of Benzoin and allow it to become perfectly dry.

Cut the plaster in pieces of suitable length and preserve them in well-closed vessels.

Substituting *gramme* (15.5 *grains*) for *part*, the above quantities are sufficient to cover a piece of taffeta, fifteen (15) inches or thirty-eight (38) centimeters square.

EMPLASTRUM OPII.

OPIUM PLASTER.

Extract of Opium, *six parts*	6
Burgundy Pitch, *eighteen parts*	18
Lead Plaster, *seventy-six parts*	76
Water, *eight parts*	8
To make *one hundred parts*	100

Rub the Extract of Opium with the Water, until uniformly soft, and add it to the Burgundy Pitch and Lead Plaster, melted together by means of a water-bath; then continue the heat for a short time, stirring constantly, until the moisture is evaporated.

EMPLASTRUM PICIS BURGUNDICÆ.

BURGUNDY PITCH PLASTER.

Burgundy Pitch, *ninety parts*	90
Yellow Wax, *ten parts*	10
To make *one hundred parts*	100

Melt them together, strain the mixture, and stir constantly until it thickens on cooling.

EMPLASTRUM PICIS CANADENSIS.

CANADA PITCH PLASTER.

[HEMLOCK PITCH PLASTER.]

Canada Pitch, *ninety parts*	90
Yellow Wax, *ten parts*	10
To make *one hundred parts*	100

Melt them together, strain the mixture, and stir constantly until it thickens on cooling.

EMPLASTRUM PICIS CUM CANTHARIDE.

PITCH PLASTER WITH CANTHARIDES.

[WARMING PLASTER.]

Burgundy Pitch, *ninety-two parts*	92
Cerate of Cantharides, *eight parts*	8
To make *one hundred parts*	100

Heat the Cerate as nearly as possible to 100° C. (212° F.) on a water-bath, and, having continued the heat for fifteen minutes, strain it through a close strainer which will retain the Cantharides. To the strained liquid add the Pitch, melt them together by means of a water-bath, and, having removed the heat, stir the mixture constantly until it thickens on cooling.

EMPLASTRUM PLUMBI.

LEAD PLASTER.

[DIACHYLON PLASTER.]

Oxide of Lead, in very fine powder, *thirty-two parts*	32
Olive Oil, *sixty parts*	60
Water, *a sufficient quantity.*	

Rub the Oxide of Lead with about one-half of the Olive Oil, and add the mixture to the remainder of the Oil, contained in a suitable vessel of a capacity equal to three times the bulk of the ingredients. Then add *ten* (10) *parts* of boiling Water, and boil the whole together until a homogeneous plaster is formed, adding, from time to time, during the process, a little Water, as that first added is consumed.

Lead Plaster is white, pliable, and tenacious, free from greasiness or stickiness. It should be entirely soluble in warm oil of turpentine (abs. of uncombined oxide of lead).

Preparation: Unguentum Diachylon.

EMPLASTRUM RESINÆ.

RESIN PLASTER.

[ADHESIVE PLASTER.]

Resin, in fine powder, *fourteen parts*	14
Lead Plaster, *eighty parts*	80
Yellow Wax, *six parts*	6
To make *one hundred parts*	100

To the Lead Plaster and Wax, melted together over a gentle fire, add the Resin, and mix them.

EMPLASTRUM SAPONIS.

SOAP PLASTER.

Soap, dried and in coarse powder, *ten parts*	10
Lead Plaster, *ninety parts*	90
Water, *a sufficient quantity.*	

Rub the Soap with Water until brought to a semi-liquid state: then mix it with the Lead Plaster, previously melted, and evaporate to the proper consistence.

ERGOTA.

ERGOT.

[ERGOT OF RYE.]

The sclerotium of *Claviceps purpurea* Tulasne (Nat. Ord., *Fungi*), replacing the grain of *Secale cereale* Linné (Nat. Ord., *Gramineæ*).

Ergot should be preserved in a dry place, and should not be kept longer than a year.

Somewhat fusiform, obtusely triangular, usually curved, about one inch (25 millimeters) long, and one-eighth of an inch (3 millimeters) thick; three-furrowed, obtuse at both ends, purplish-black, internally whitish with some purplish striæ, breaking with a short fracture; odor peculiar, heavy, increased by trituration with solution of potassa; taste oily and disagreeable.

Preparations: Extractum Ergotæ Fluidum. Vinum Ergotæ.

ERYTHROXYLON.

ERYTHROXYLON.

[COCA.]

The leaves of *Erythroxylon Coca* Lamarck (Nat. Ord., *Erythroxylaceæ*).

Oval or obovate-oblong, two to three inches (50 to 75 millimeters) long, short-petiolate, entire, rather obtuse or emarginate at the apex, reticulate on both sides, with a prominent midrib, and, on each side of it, a curved line running from base to apex; odor slight and tea-like; taste somewhat aromatic and bitter.

Preparation: Extractum Erythroxyli Fluidum.

EUCALYPTUS.

EUCALYPTUS.

The leaves of *Eucalyptus globulus* Labillardière (Nat. Ord., *Myrtaceæ*), collected from rather old trees.

Petiolate, lanceolately scythe-shaped, from six to twelve inches (15 to 30 centimeters) long, rounded below, tapering above, entire, leathery, gray-green, glandular, feather-veined between the midrib and marginal veins; odor strongly camphoraceous; taste pungently aromatic, somewhat bitter and astringent.

Preparation: Extractum Eucalypti Fluidum.

EUONYMUS.

EUONYMUS.

[WAHOO.]

The bark of *Euonymus atropurpureus* Jacquin (Nat. Ord., *Celastraceæ*).

In quilled or curved pieces, about one-twelfth of an inch (2 millimeters) thick; outer surface ash-gray, with blackish patches, detached in thin and small scales; inner surface whitish or slightly tawny, smooth; fracture smooth, whitish, the inner layers tangentially striate; nearly inodorous; taste sweetish, somewhat bitter and acrid.

Preparation: Extractum Euonymi.

EUPATORIUM.

EUPATORIUM.

[THOROUGHWORT.]

The leaves and flowering tops of *Eupatorium perfoliatum* Linné (Nat. Ord., *Compositæ*).

Leaves opposite, united at base, lanceolate, from four to six inches (10 to 15 centimeters) long, tapering, crenately serrate, rugosely veined, rough above, downy and resinous-dotted beneath; flower-heads corymbed, numerous, with an oblong involucre of lance-linear scales, and with from ten to fifteen white florets, having a bristly pappus in a single row; odor weak and aromatic; taste astringent and bitter.

Preparation: Extractum Eupatorii Fluidum.

EXTRACTUM ACONITI.

EXTRACT OF ACONITE.

Aconite, in No. 60 powder, *one hundred parts*..................	100
Tartaric Acid, *one part*..................................	1
Glycerin,	
Alcohol, each, *a sufficient quantity.*	

Moisten the powder with *forty* (40) *parts* of Alcohol in which the Tartaric Acid has previously been dissolved, and pack it firmly in a cylindrical glass percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until *three hundred* (300) *parts* of tincture are obtained, or the Aconite is exhausted. Reserve the first *ninety* (90) *parts* of the percolate, evaporate the remainder in a porcelain capsule at a temperature not exceeding 50° C. (122° F.), to *ten* (10) *parts*, add the reserved portion, and evaporate at or below the above-mentioned temperature, until an extract of a pilular consistence remains. Lastly, weigh the Extract and thoroughly incorporate with it, while still warm, *five* (5) *per cent.* of Glycerin.

EXTRACTUM ACONITI FLUIDUM.

FLUID EXTRACT OF ACONITE.

Aconite, in No. 60 powder, *one hundred grammes*...............	100
Tartaric Acid, *one gramme*................................	1
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*....	100

Moisten the powder with *forty* (40) *grammes* of Alcohol in which the Tartaric Acid has previously been dissolved, and pack it firmly in a cylindrical glass percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Aconite is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder, in a porcelain capsule, at a temperature not exceeding 50° C.

(122° F.), to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM ALOES AQUOSUM.

AQUEOUS EXTRACT OF ALOES.

Aloes, *one hundred parts*	100
Boiling Distilled Water, *one thousand parts*	1000

Mix the Aloes with the Water in a suitable vessel, stirring constantly, until the particles of Aloes are thoroughly disintegrated, and let the mixture stand for twelve hours; then pour off the clear liquor, strain the residue, mix the liquids, and evaporate to dryness by means of a water- or steam-bath.

EXTRACTUM ARNICÆ RADICIS.

EXTRACT OF ARNICA ROOT.

Arnica Root, in No. 60 powder, *one hundred parts*	100
Glycerin,	
Diluted Alcohol, each, *a sufficient quantity.*	

Moisten the powder with *forty* (40) *parts* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for twenty-four hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until *three hundred* (300) *parts* of tincture are obtained, or the Arnica Root is exhausted. Reserve the first *ninety* (90) *parts* of the percolate; evaporate the remainder to *ten* (10) *parts*, at a temperature not exceeding 50° C. (122° F.), mix the residue with the reserved portion, and evaporate, at or below the above-mentioned temperature, to a pilular consistence. Lastly, weigh the Extract and thoroughly incorporate with it, while still warm, *five* (5) *per cent.* of Glycerin.

Preparation: Emplastrum Arnicæ.

EXTRACTUM ARNICÆ RADICIS FLUIDUM.

FLUID EXTRACT OF ARNICA ROOT.

Arnica Root, in No. 60 powder, *one hundred grammes*	100
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *forty* (40) *grammes* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until the Arnica Root is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder, at a temperature not exceeding 50° C. (122° F.), to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM AROMATICUM FLUIDUM.

AROMATIC FLUID EXTRACT.

Aromatic Powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *thirty-five* (35) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Aromatic Powder is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM AURANTII AMARI FLUIDUM.

FLUID EXTRACT OF BITTER ORANGE PEEL.

Bitter Orange Peel, in No. 40 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix *two* (2) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *thirty-five* (35) *grammes* of the mixture, pack it moderately in a conical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Orange Peel is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate, and evaporate the remainder, at a temperature not exceeding 50° C. (122° F.), to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM BELLADONNÆ ALCOHOLICUM.

ALCOHOLIC EXTRACT OF BELLADONNA.

Belladonna Leaves, in No. 60 powder, *one hundred parts*	100
Alcohol, *two hundred parts*	200
Water, *one hundred parts*	100
Glycerin,	
Diluted Alcohol, each, *a sufficient quantity.*	

Mix the Alcohol and Water, and, having moistened the powder with *forty* (40) *parts* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and then Diluted Alcohol, until *three hundred* (300) *parts* of tincture are obtained, or the Belladonna Leaves are exhausted. Reserve the first *ninety* (90) *parts* of the percolate, evaporate the remainder at a temperature not exceeding 50° C. (122° F.), to *ten* (10) *parts*, mix the residue with the reserved portion, and evaporate at or below the above-mentioned temperature to a pilular consistence. Lastly, weigh the Extract, and thoroughly incorporate with it, while still warm, *five* (5) *per cent.* of Glycerin.

Preparation: Unguentum Belladonnæ.

EXTRACTUM BELLADONNÆ FLUIDUM.

FLUID EXTRACT OF BELLADONNA.

Belladonna Root, in No. 60 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *thirty-five* (35) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Belladonna Root is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder, at a temperature not exceeding 50° C. (122° F.), to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

Preparation: Linimentum Belladonnæ.

EXTRACTUM BRAYERÆ FLUIDUM.

FLUID EXTRACT OF BRAYERA.

Brayera, in No. 40 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*....	100

Moisten the powder with *forty* (40) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Brayera is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate; by means of a water-bath, distil off the Alcohol from the remainder, and evaporate the residue to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM BUCHU FLUIDUM.

FLUID EXTRACT OF BUCHU.

Buchu, in No. 60 powder, *one hundred grammes*................	100
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*....	100

Mix *two* (2) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *thirty* (30) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Buchu is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM CALAMI FLUIDUM.

FLUID EXTRACT OF CALAMUS.

Calamus, in No. 60 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *thirty-five* (35) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Calamus is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM CALUMBÆ FLUIDUM.

FLUID EXTRACT OF CALUMBA.

Calumba, in No. 20 powder, *one hundred grammes*	100
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *thirty* (30) *grammes* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until the

Calumba is exhausted. Reserve the first *seventy* (70) *cubic centimeters* of the percolate; by means of a water-bath, distil off the Alcohol from the remainder, and evaporate the residue to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM CANNABIS INDICÆ.

EXTRACT OF INDIAN CANNABIS.

Indian Cannabis, in No. 20 powder, *one hundred parts*	100
Alcohol, *a sufficient quantity.*	

Moisten the powder with *thirty* (30) *parts* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol until *three hundred* (300) *parts* of tincture are obtained, or the Cannabis is exhausted. By means of a water-bath, distil off the Alcohol from the tincture, and, having placed the residue in a porcelain capsule, evaporate it, on a water-bath, to a pilular consistence.

EXTRACTUM CANNABIS INDICÆ FLUIDUM.

FLUID EXTRACT OF INDIAN CANNABIS.

Indian Cannabis, in No. 20 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *thirty* (30) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Indian Cannabis is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate; by means of a water-bath, distil off the Alcohol from the remainder, and evaporate the residue to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM CAPSICI FLUIDUM.

FLUID EXTRACT OF CAPSICUM.

Capsicum, in No. 60 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Moisten the powder with *fifty* (50) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator ; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Capsicum is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract ; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM CASTANEÆ FLUIDUM.

FLUID EXTRACT OF CASTANEA.

Castanea, in No. 30 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Pour *five hundred* (500) *cubic centimeters* of boiling Water upon the powder, allow it to macerate for two hours, then express the liquid, transfer the residue to a percolator, and pour Water upon it until the powder is exhausted. Evaporate the united liquids, on a water-bath, to *two hundred* (200) *cubic centimeters*, let cool, and add *sixty* (60) *cubic centimeters* of Alcohol. When the insoluble matter has subsided, separate the clear liquid, filter the remainder, evaporate the united liquids to *eighty* (80) *cubic centimeters*, allow to cool, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM CHIMAPHILÆ FLUIDUM.

FLUID EXTRACT OF CHIMAPHILA.

Chimaphila, in No. 30 powder, *one hundred grammes*	100
Glycerin, *ten grammes*	10
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *ninety* (90) *grammes* of Diluted Alcohol. Moisten the powder with *forty* (40) *grammes* of the mixture, and pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and afterward, Diluted Alcohol, until the Chimaphila is exhausted. Reserve the first *seventy* (70) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM CHIRATÆ FLUIDUM.

FLUID EXTRACT OF CHIRATA.

Chirata, in No. 30 powder, *one hundred grammes*	100
Glycerin, *ten grammes*	10
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *ninety* (90) *grammes* of Diluted Alcohol. Moisten the powder with *thirty-five* (35) *grammes* of the mixture, and pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and afterward, Diluted Alcohol, until the Chirata is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate; by means of a water-bath, distil off the Alcohol from the remainder, and evaporate the residue to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM CIMICIFUGÆ FLUIDUM.

FLUID EXTRACT OF CIMICIFUGA.

Cimicifuga, in No. 60 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *twenty-five* (25) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Cimicifuga is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM CINCHONÆ.

EXTRACT OF CINCHONA.

Yellow Cinchona, in No. 60 powder, *one hundred parts*	100
Alcohol, *three hundred parts*	300
Water, *one hundred parts*	100
Glycerin,	
Diluted Alcohol, each, *a sufficient quantity.*	

Mix the Alcohol and Water, and, having moistened the powder with *thirty-five* (35) *parts* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and then Diluted Alcohol, until *four hundred* (400) *parts* of tincture are obtained, or the Cinchona is exhausted. By means of a water-bath, distil off the Alcohol from the tincture, and, having placed the residue in a porcelain capsule, evaporate it on a water-bath, to a pilular consistence. Lastly, weigh the Extract, and thoroughly incorporate with it, while still warm, *five* (5) *per cent.* of Glycerin.

EXTRACTUM CINCHONÆ FLUIDUM.

FLUID EXTRACT OF CINCHONA.

Yellow Cinchona, in No. 60 powder, *one hundred grammes*	100
Glycerin, *twenty-five grammes*	25
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *seventy-five* (75) *grammes* of Alcohol. Moisten the powder with *thirty-five* (35) *grammes* of the mixture, pack it firmly in a cylindrical percolator, and pour on the remainder of the menstruum. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, and, when the liquid in the percolator has disappeared from the surface, gradually pour on a mixture of Alcohol and Water, made in the proportion of *three* (3) *parts* of Alcohol to *one* (1) *part* of Water, and continue the percolation until the Cinchona is exhausted. Reserve the first *seventy-five* (75) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough of a mixture of Alcohol and Water, using the same proportions as before, to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM COLCHICI RADICIS.

EXTRACT OF COLCHICUM ROOT.

Colchicum Root, in No. 60 powder, *one hundred parts*	100
Acetic Acid, *thirty-five parts*	35
Water, *a sufficient quantity.*	

Mix the Acetic Acid with *one hundred and fifty* (150) *parts* of Water, and, having moistened the powder with *fifty* (50) *parts* of the mixture, pack it moderately in a cylindrical glass percolator; then add enough menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and then Water, until the Colchicum Root is exhausted. Evaporate the percolate, in a porcelain vessel, by means of a water-bath, at a temperature not exceeding 80° C. (176° F.), to a pilular consistence.

EXTRACTUM COLCHICI RADICIS FLUIDUM.

FLUID EXTRACT OF COLCHICUM ROOT.

Colchicum Root, in No. 60 powder, *one hundred grammes*......	100
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*....	100

Mix *two* (2) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *thirty-five* (35) *grammes* of the mixture, pack it moderately in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Colchicum Root is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM COLCHICI SEMINIS FLUIDUM.

FLUID EXTRACT OF COLCHICUM SEED.

Colchicum Seed, in No. 30 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*....	100

Mix *two* (2) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *thirty* (30) *grammes* of the mixture, pack it firmly in a cylindrical percolator, then add enough menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Colchicum Seed is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM COLOCYNTHIDIS.

EXTRACT OF COLOCYNTH.

Colocynth, dried, and freed from the seeds, *one hundred parts*...	100
Diluted Alcohol, *a sufficient quantity.*	

Reduce the Colocynth to a coarse powder by grinding or bruising, and macerate it in *two hundred and fifty* (250) *parts* of Diluted Alcohol for four days, with occasional stirring; then express strongly, and strain through flannel. Pack the residue, previously broken up with the hands, firmly in a cylindrical percolator, cover it with the strainer, and gradually pour Diluted Alcohol upon it until the tincture and expressed liquid, mixed together, weigh *five hundred* (500) *parts*. Having recovered from the mixture *three hundred* (300) *parts* of Alcohol by distillation, evaporate the residue to dryness, by means of a water-bath. Lastly, reduce the dry mass to powder.

Extract of Colocynth should be kept in well-stopped bottles.

Preparation: Extractum Colocynthidis Compositum.

EXTRACTUM COLOCYNTHIDIS COMPOSITUM.

COMPOUND EXTRACT OF COLOCYNTH.

Extract of Colocynth, *sixteen parts*	16
Aloes, *fifty parts*	50
Cardamom, in No. 60 powder, *six parts*	6
Resin of Scammony, in fine powder, *fourteen parts*	14
Soap, dried and in coarse powder, *fourteen parts*	14
Alcohol, *ten parts*	10

Heat the Aloes, on a water-bath, until it is completely melted; then add the Alcohol, and, having stirred the mixture thoroughly, strain it through a fine sieve, which has just been dipped into boiling water. To the strained mixture, contained in a suitable vessel, add the Soap, Extract of Colocynth and Resin of Scammony, and heat the mixture at a temperature not exceeding 120° C. (248° F.), until it is perfectly homogeneous, and a thread taken from the mass becomes brittle when cool. Then withdraw the heat, thoroughly incorporate the Cardamom with the mixture and cover the vessel until the contents are cold. Finally, reduce the product to a fine powder.

Compound Extract of Colocynth should be kept in well-stopped bottles.

Preparation: Pilulæ Catharticæ Compositæ.

EXTRACTUM CONII ALCOHOLICUM.

ALCOHOLIC EXTRACT OF CONIUM.

Conium, in No. 40 powder, *one hundred parts*	100
Diluted Hydrochloric Acid, *three parts*	3

Glycerin,
Diluted Alcohol, each, *a sufficient quantity.*

Moisten the powder with *thirty* (30) *parts* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until *three hundred* (300) *parts* of tincture are obtained, or until the Conium is exhausted. Reserve the first *ninety* (90) *parts* of the percolate, add the Diluted Hydrochloric Acid to the remainder, and evaporate it, at a temperature not exceeding 50° C. (122° F.), to *ten* (10) *parts;* mix this with the reserved portion, in a porcelain capsule, and evaporate at or below the before-mentioned temperature, to a pilular consistence. Lastly, weigh the Extract, and thoroughly incorporate with it, while still warm, *five* (5) *per cent.* of Glycerin.

EXTRACTUM CONII FLUIDUM.

FLUID EXTRACT OF CONIUM.

Conium, in No. 40 powder, *one hundred grammes*	100
Diluted Hydrochloric Acid, *three grammes*	3
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *thirty* (30) *grammes* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until the Conium is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and, having added the Diluted Hydrochloric Acid to the remainder, evaporate it, at a temperature not exceeding 50° C. (122° F.), to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM CORNUS FLUIDUM.

FLUID EXTRACT OF CORNUS.

Cornus, in No. 60 powder, *one hundred grammes*	100
Glycerin, *twenty grammes*	20
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *eighty* (80) *grammes* of Diluted Alcohol. Moisten the powder with *thirty* (30) *grammes* of the mixture, and pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and afterward, Diluted Alcohol, until the Cornus is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM CUBEBÆ FLUIDUM.

FLUID EXTRACT OF CUBEB.

Cubeb, in No. 60 power, *one hundred grammes*	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *twenty-five* (25) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Cubeb is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM CYPRIPEDII FLUIDUM.

FLUID EXTRACT OF CYPRIPEDIUM.

Cypripedium, in No. 60 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *thirty-five* (35) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Cypripedium is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM DIGITALIS.

EXTRACT OF DIGITALIS.

Digitalis, recently dried and in No. 60 powder, *one hundred parts*	100
Alcohol, *two hundred parts*	200
Water, *one hundred parts*	100
Glycerin,	
Diluted Alcohol, each, *a sufficient quantity.*	

Mix the Alcohol and Water, and, having moistened the powder with *forty* (40) *parts* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and then, Diluted Alcohol, until *three hundred* (300) *parts* of tincture are obtained, or the Digitalis is exhausted. By means of a water-bath, distil off the Alcohol from the tincture, and, having placed the residue in a porcelain capsule, evaporate it on a water-bath, to a pilular consistence. Lastly, weigh the Extract, and thoroughly incorporate with it, while still warm, *five* (5) *per cent.* of Glycerin.

EXTRACTUM DIGITALIS FLUIDUM.

FLUID EXTRACT OF DIGITALIS.

Digitalis, recently dried and in No. 60 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix *three* (3) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *thirty-five* (35) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Digitalis is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM DULCAMARÆ FLUIDUM.

FLUID EXTRACT OF DULCAMARA.

Dulcamara, in No. 60 powder, *one hundred grammes*	100
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*....	100

Moisten the powder with *forty* (40) *grammes* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until the Dulcamara is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM ERGOTÆ.

EXTRACT OF ERGOT

Fluid Extract of Ergot, *five hundred parts*	500
To make *one hundred parts*....	100

Evaporate the Fluid Extract of Ergot in a porcelain capsule, by means of a water-bath, at a temperature not exceeding 50° C. (122° F.), constantly stirring, until it is reduced to *one hundred* (100) *parts.*

EXTRACTUM ERGOTÆ FLUIDUM.

FLUID EXTRACT OF ERGOT.

Ergot, recently ground and in No. 60 powder, *one hundred grammes*	100
Diluted Hydrochloric Acid, *six grammes*	6
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Mix *three* (3) *parts* of Alcohol with *four* (4) *parts* of Water, and, having moistened the powder with *thirty* (30) *grammes* of the mixture, pack it firmly in a cylindrical percolator ; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Ergot is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and, having added the Diluted Hydrochloric Acid to the remainder, evaporate to a soft extract ; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

Preparation: Extractum Ergotæ.

EXTRACTUM ERYTHROXYLI FLUIDUM.

FLUID EXTRACT OF ERYTHROXYLON.

Erythroxylon, in No. 40 powder, *one hundred grammes*	100
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Moisten the powder with *forty-five* (45) *grammes* of Diluted Alcohol, and pack it firmly in a cylindrical percolator ; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until the Erythroxylon is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract ; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM EUCALYPTI FLUIDUM.

FLUID EXTRACT OF EUCALYPTUS.

Eucalyptus, in No. 40 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *thirty-five* (35) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol until the Eucalyptus is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM EUONYMI.

EXTRACT OF EUONYMUS.

Euonymus, in No. 30 powder, *one hundred parts*	100
Glycerin,	
Diluted Alcohol, each, *a sufficient quantity.*	

Moisten the powder with *forty* (40) *parts* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until *three hundred* (300) *parts* of tincture are obtained, or the Euonymus is exhausted. By means of a water-bath, distil off the Alcohol from the tincture, and, having placed the residue in a porcelain capsule, evaporate it, on a water-bath, to a pilular consistence. Lastly, weigh the Extract, and thoroughly incorporate with it, while still warm, *five* (5) *per cent.* of Glycerin.

EXTRACTUM EUPATORII FLUIDUM.

FLUID EXTRACT OF EUPATORIUM.

Eupatorium, in No. 40 powder, *one hundred grammes*	100
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *forty* (40) *grammes* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until the Eupatorium is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM FRANGULÆ FLUIDUM.

FLUID EXTRACT OF FRANGULA.

Frangula, in No. 40 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Mix *one* (1) *part* of Alcohol with *two* (2) *parts* of Water, and, having moistened the powder with *thirty-five* (35) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Frangula is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM GELSEMII FLUIDUM.

FLUID EXTRACT OF GELSEMIUM.

Gelsemium, in No. 60 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Moisten the powder with *thirty* (30) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Gelsemium is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM GENTIANÆ.

EXTRACT OF GENTIAN.

Gentian, in No. 20 powder, *one hundred parts* 100
Water, *a sufficient quantity.*

Moisten the powder with *forty* (40) *parts* of Water, and let it macerate for twenty-four hours; then pack it in a conical percolator, and gradually pour Water upon it until the infusion passes but slightly imbued with the properties of the Gentian. Reduce the liquid to three-fourths of its weight by boiling, and strain; then, by means of a water-bath, evaporate to a pilular consistence.

EXTRACTUM GENTIANÆ FLUIDUM.

FLUID EXTRACT OF GENTIAN.

Gentian, in No. 30 powder, *one hundred grammes*............... 100
Diluted Alcohol, *a sufficient quantity,*

To make *one hundred cubic centimeters*.... 100

Moisten the powder with *thirty-five* (35) *grammes* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until the Gentian is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate. By means of a water-bath, distil off the Alcohol from the remainder and evaporate the residue to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM GERANII FLUIDUM.

FLUID EXTRACT OF GERANIUM.

Geranium, in No. 30 powder, *one hundred grammes*	100
Glycerin, *ten grammes*	10
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *ninety* (90) *grammes* of Diluted Alcohol, and, having moistened the powder with *thirty-five* (35) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and afterward, Diluted Alcohol, until the Geranium is exhausted. Reserve the first *seventy* (70) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM GLYCYRRHIZÆ.

EXTRACT OF GLYCYRRHIZA.

[EXTRACT OF LIQUORICE.]

The commercial extract of the root of *Glycyrrhiza glabra* Linné (Nat. Ord., *Leguminosæ, Papilionaceæ*).

In flattened, cylindrical rolls, from six inches to six and three-quarter inches (150 to 175 millimeters) long, and from five-eighths to one and one-sixteenth inches (15 to 30 millimeters) thick; of a glossy black color. It breaks with a sharp, conchoidal, shining fracture, and has a very sweet, peculiar taste. Not less than 60 per cent. of it should be soluble in cold water.

EXTRACTUM GLYCYRRHIZÆ FLUIDUM.

FLUID EXTRACT OF GLYCYRRHIZA.

Glycyrrhiza, in No. 40 powder, *one hundred grammes*	100
Water of Ammonia,	
Diluted Alcohol, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Mix *three* (3) *parts* of Water of Ammonia with *ninety-seven* (97) *parts* of Diluted Alcohol, and, having moistened the powder with *thirty-*

five (35) *grammes* of the mixture, pack it firmly in a cylindrical glass percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Glycyrrhiza is exhausted. Reserve the first *seventy-five* (75) *cubic centimeters* of the percolate, and, having added *three* (3) *grammes* of Water of Ammonia to the remainder, evaporate to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM GLYCYRRHIZÆ PURUM.

PURE EXTRACT OF GLYCYRRHIZA.

Glycyrrhiza, in No. 20 powder, *one hundred parts*	100
Water of Ammonia, *fifteen parts*	15
Distilled Water, *a sufficient quantity.*	

Mix the Water of Ammonia with *three hundred* (300) *parts* of Distilled Water, and, having moistened the powder with *one hundred* (100) *parts* of the menstruum, let it macerate for twenty-four hours. Then pack it moderately in a cylindrical glass percolator, and gradually pour upon it, first, the remainder of the menstruum, and then, Distilled Water, until the Glycyrrhiza is exhausted. Lastly, by means of a water-bath, evaporate the infusion to a pilular consistence.

Preparation: Mistura Glycyrrhizæ Composita.

EXTRACTUM GOSSYPII RADICIS FLUIDUM.

FLUID EXTRACT OF COTTON ROOT.

Cotton Root, in No. 30 powder, *one hundred grammes*	100
Glycerin, *thirty-five grammes*	35
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *sixty-five* (65) *grammes* of Alcohol, and, having moistened the powder with *fifty* (50) *grammes* of the mixture, pack it firmly in a cylindrical percolator, and pour on the remainder of the menstruum. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, and, when the liquid in the percolator has disappeared from the surface, gradually pour on Alcohol, and continue the percolation until the Cotton Root is exhausted. Reserve the first *seventy* (70) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM GRINDELIÆ FLUIDUM.

FLUID EXTRACT OF GRINDELIA.

Grindelia, in No. 30 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters....*	100

Mix *three* (3) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *thirty* (30) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Grindelia is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM GUARANÆ FLUIDUM.

FLUID EXTRACT OF GUARANA.

Guarana, in No. 60 powder, *one hundred grammes*..............	100
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters....*	100

Mix *three* (3) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *twenty* (20) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Guarana is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate. By means of a water-bath, distil off the Alcohol from the remainder, and evaporate the residue to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM HÆMATOXYLI.

EXTRACT OF HÆMATOXYLON.

Hæmatoxylon, rasped, *one hundred parts*	100
Water, *one thousand parts*	1000

Macerate the Hæmatoxylon with the Water for forty-eight hours. Then boil (avoiding the use of metallic vessels) until one-half of the Water has evaporated; strain the decoction, while hot, and evaporate to dryness.

EXTRACTUM HAMAMELIDIS FLUIDUM.

FLUID EXTRACT OF HAMAMELIS.

Hamamelis, in No. 40 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Mix *one* (1) *part* of Alcohol with *two* (2) *parts* of Water, and, having moistened the powder with *thirty-five* (35) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Hamamelis is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM HYDRASTIS FLUIDUM.

FLUID EXTRACT OF HYDRASTIS.

Hydrastis, in No. 60 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*....	100

Mix *three* (3) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *thirty* (30) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Hydrastis is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate. By means of a water bath, distil off the Alcohol from the remainder, and evaporate the residue to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM HYOSCYAMI ALCOHOLICUM.

ALCOHOLIC EXTRACT OF HYOSCYAMUS.

Hyoscyamus, recently dried and in No. 60 powder, *one hundred parts*	100
Alcohol, *two hundred parts*..................................	200
Water, *one hundred parts*	100
Diluted Alcohol, *a sufficient quantity.*	

Mix the Alcohol and Water, and, having moistened the powder with *forty* (40) *parts* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and then, Diluted Alcohol, until *three hundred* (300) *parts* of tincture are obtained, or the Hyoscyamus is exhausted. Reserve the first *ninety* (90) *parts* of the percolate, evaporate the remainder, at a temperature not exceeding 50° C. (122° F.), to *ten* (10) *parts;* mix this with the reserved portion, and evaporate, at or below the before-mentioned temperature, to a pilular consistence.

EXTRACTUM HYOSCYAMI FLUIDUM.

FLUID EXTRACT OF HYOSCYAMUS.

Hyoscyamus, in No. 60 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Mix *three* (3) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *forty* (40) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Hyoscyamus is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder, at a temperature not exceeding 50° C. (122° F.), to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM IPECACUANHÆ FLUIDUM.

FLUID EXTRACT OF IPECAC.

Ipecac, in No. 80 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Moisten the powder with *thirty-five* (35) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed until the Ipecac is exhausted. By means of a water-bath, distil off the Alcohol from the tincture until the residue measures *fifty* (50) *cubic centimeters*, and add to it *one hundred* (100) *cubic centimeters* of Water. Evaporate the mixture to *seventy-five* (75) *cubic centimeters*, and, when cool, filter. Wash the precipitate upon the filter, with Water, until the latter passes through tasteless, evaporate the filtrate and washings to *fifty* (50) *cubic centimeters*, allow to cool, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters*.

Preparations : Syrupus Ipecacuanhæ. Tinctura Ipecacuanhæ et Opii. Vinum Ipecacuanhæ.

EXTRACTUM IRIDIS.

EXTRACT OF IRIS.

Iris, in No. 60 powder, *one hundred parts*	100
Alcohol, *two hundred and twenty-five parts*	225
Water, *seventy-five parts*	75
Diluted Alcohol, *a sufficient quantity*.	

Mix the Alcohol and Water, and, having moistened the powder with *forty* (40) *parts* of the mixture, pack it firmly in a cylindrical percolator ; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and then, Diluted Alcohol, until *three hundred* (300) *parts* of tincture are obtained, or the Iris is exhausted. By means of a water-bath, distil off the Alcohol from the tincture, and, having placed the residue in a porcelain capsule, evaporate it, on a water-bath, to a pilular consistence.

EXTRACTUM IRIDIS FLUIDUM.

FLUID EXTRACT OF IRIS.

Iris, in No. 60 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Mix *three* (3) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *forty* (40) *grammes* of the mixture, pack it firmly in a cylindrical percolator ; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Iris is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder, on a water-bath, to a soft extract ; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters*.

EXTRACTUM JUGLANDIS.

EXTRACT OF JUGLANS.

Juglans, in No. 30 powder, *one hundred parts*	100
Glycerin,	
Alcohol, each, *a sufficient quantity.*	

Moisten the powder with *forty* (40) *parts* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until *three hundred* (300) *parts* of tincture are obtained, or the Juglans is exhausted. By means of a water-bath, distil off the Alcohol from the tincture, and, having placed the residue in a porcelain capsule, evaporate it, on a water-bath, to a pilular consistence. Lastly, weigh the Extract and thoroughly incorporate with it, while still warm, *five* (5) *per cent.* of Glycerin.

EXTRACTUM KRAMERIÆ.

EXTRACT OF KRAMERIA.

Krameria, in No. 40 powder, *one hundred parts*	100
Water, *a sufficient quantity.*	

Moisten the powder with *thirty* (30) *parts* of Water, pack it in a conical glass percolator, and gradually pour Water upon it, until the infusion passes but slightly imbued with the astringency of the Krameria. Heat the liquid to the boiling point, strain, and, by means of a water-bath, at a temperature not exceeding 70° C. (158° F.), evaporate to dryness.

Preparation: Trochisci Krameriæ.

EXTRACTUM KRAMERIÆ FLUIDUM.

FLUID EXTRACT OF KRAMERIA.

Krameria, in No. 30 powder, *one hundred grammes*	100
Glycerin, *twenty grammes*	20
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *eighty* (80) *grammes* of Diluted Alcohol, and, having moistened the powder with *forty* (40) *grammes* of the mixture, pack it firmly in a cylindrical glass percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and afterward, Diluted Alcohol, until the Krameria is exhausted. Reserve the first *seventy* (70) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

Preparation: Syrupus Krameriæ.

EXTRACTUM LACTUCARII FLUIDUM.

FLUID EXTRACT OF LACTUCARIUM.

Lactucarium, in coarse pieces, *one hundred grammes*	100
Ether, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Add the Lactucarium to the Ether contained in a tared flask having the capacity of *six hundred* (600) *cubic centimeters*, and let it macerate for twenty-four hours; then add *three hundred* (300) *grammes* of Water, and shake the mixture well. Fit a bent glass tube into the neck of the flask, and, having immersed the flask in hot water, recover the Ether by distillation. When all the Ether has distilled over, remove the tube, and, after thoroughly shaking the contents of the flask, continue the heat for half an hour. Let the mixture cool, add *one hundred* (100) *grammes* of Alcohol, and enough Water to make the whole mixture weigh *five hundred* (500) *grammes;* after maceration for twenty-four hours, with occasional agitation, express and filter the liquid. Return the dregs to the flask and macerate them with *two hundred* (200) *grammes* of a mixture of Alcohol and Water made in the proportion of *one* (1) *part* of Alcohol to *three* (3) *parts* of Water; repeat the maceration two or three times, successively, with fresh portions of the mixture, until the dregs are tasteless, or nearly so. Mix, and filter the liquids thus obtained, and concentrate them, by means of a water-bath (the first expressed liquid by itself), until the combined weight of the liquids is *sixty* (60) *grammes;* mix the liquids, add *forty* (40) *grammes* of Alcohol, and let the mixture cool in the evaporating vessel, stirring the mixture frequently, and during the intervals keeping the vessel well covered. When cool, add enough Alcohol to make the mixture weigh *one hundred* (100) *grammes*, transfer the liquid to a flask, and add enough Water to make the mixture measure *one hundred* (100) *cubic centimeters*, using the Water so required to rinse the evaporating vessel. Shake the mixture occasionally, during several hours (and frequently, if a portion of the precipitate is found to be tenacious), and, when a uniform mixture results, set it aside for twenty-four hours, so that any precipitate formed may subside. Decant the clear liquid, transfer the precipitate to a filter, and, after thoroughly draining it into the decanted liquid, wash it with a mixture of Alcohol and Water made in the proportion of *three* (3) *parts* of Alcohol to *four* (4) *parts* of Water, until the washings pass tasteless. Concentrate the washings, by evaporation, to a syrupy consistence, mix with the decanted liquid, and add enough of the last-named mixture of Alcohol and Water to make the whole measure *one hundred* (100) *cubic centimeters*. Lastly, after twenty-four hours, having meanwhile shaken the Fluid Extract occasionally, filter it through paper.

Preparation: Syrupus Lactucarii.

EXTRACTUM LEPTANDRÆ.

EXTRACT OF LEPTANDRA.

Leptandra, in No. 40 powder, *one hundred parts*	100
Alcohol, *two hundred parts*	200
Water, *one hundred parts*	100
Glycerin,	
Diluted Alcohol, each, *a sufficient quantity.*	

Mix the Alcohol and Water, and, having moistened the powder with *forty* (40) *parts* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and then, Diluted Alcohol, until *three hundred* (300) *parts* of tincture are obtained or the Leptandra is exhausted. By means of a water-bath, distil off the Alcohol from the tincture, and, having placed the residue in a porcelain capsule, evaporate it, on a water-bath, to a pilular consistence. Lastly, weigh the Extract, and thoroughly incorporate with it, while still warm, *five* (5) *per cent.* of Glycerin.

EXTRACTUM LEPTANDRÆ FLUIDUM.

FLUID EXTRACT OF LEPTANDRA.

Leptandra, in No. 60 powder, *one hundred grammes*	100
Glycerin, *fifteen grammes*	15
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *eighty-five* (85) *grammes* of Diluted Alcohol, and, having moistened the powder with *forty* (40) *grammes* of the mixture, pack moderately in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first the remainder of the menstruum, and afterward, Diluted Alcohol, until the Leptandra is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM LOBELIÆ FLUIDUM.

FLUID EXTRACT OF LOBELIA.

Lobelia, in No. 60 powder, *one hundred grammes*	100
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Moisten the powder with *thirty-five* (35) *grammes* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until the Lobelia is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder, at a temperature not exceeding 50° C. (122° F.), to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM LUPULINI FLUIDUM.

FLUID EXTRACT OF LUPULIN.

Lupulin, *one hundred grammes*	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the Lupulin with *twenty* (20) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the Lupulin and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Lupulin is exhausted. Reserve the first *seventy* (70) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM MALTI.

EXTRACT OF MALT.

Malt, in coarse powder, not finer than No. 12, *one hundred parts*	100
Water, *a sufficient quantity.*	

Upon the powder, contained in a suitable vessel, pour *one hundred* (100) *parts* of Water, and macerate for six hours. Then add *four hundred* (400) *parts* of Water, heated to about 30° C. (86° F.), and digest for an hour at a temperature not exceeding 55° C. (131° F.). Strain the mixture with strong expression. Finally, by means of a water-bath, or vacuum-apparatus, at a temperature not exceeding 55° C. (131° F.), evaporate the strained liquid rapidly to the consistence of thick honey.

Keep the product in well-closed vessels, in a cool place.

EXTRACTUM MATICO FLUIDUM.

FLUID EXTRACT OF MATICO.

Matico, in No. 40 powder, *one hundred grammes*	100
Glycerin, *ten grammes*	10
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *seventy-five* (75) *grammes* of Alcohol and *twenty-five* (25) *grammes* of Water, and, having moistened the powder with *thirty* (30) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and afterward, a mixture of Alcohol and Water, made in the proportion of *three* (3) *parts* of Alcohol to *one* (1) *part* of Water, until the Matico is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough of a mixture of Alcohol and Water, using the same proportions as before, to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM MEZEREI.

EXTRACT OF MEZEREUM.

Mezereum, in No. 30 powder, *one hundred parts*................	100
Alcohol, *a sufficient quantity.*	

Moisten the powder with *forty* (40) *parts* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until *three hundred* (300) *parts* of tincture are obtained, or the Mezereum is exhausted. Reserve the first *ninety* (90) *parts* of the percolate; evaporate the remainder, at a temperature not exceeding 50° C. (122° F.), to *ten* (10) *parts;* mix this with the reserved portion, and evaporate, at or below the before-mentioned temperature, in a porcelain capsule, on a water-bath, to a pilular consistence.

Preparation: Linimentum Sinapis Compositum.

EXTRACTUM MEZEREI FLUIDUM.

FLUID EXTRACT OF MEZEREUM.

Mezereum, in No. 30 powder, *one hundred grammes*............	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*....	100

Moisten the powder with *forty* (40) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Mezereum is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder, at a temperature not exceeding 50° C. (122° F.), to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

Preparation: Unguentum Mezerei.

EXTRACTUM NUCIS VOMICÆ.

EXTRACT OF NUX VOMICA.

Nux Vomica, in No. 60 powder, *one hundred parts*	100
Alcohol,	
Water, each, *a sufficient quantity.*	

Mix Alcohol and Water in the proportion of *eight* (8) *parts* of Alcohol and *one* (1) *part* of Water, and, having moistened the powder with *one hundred* (100) *parts* of the mixture, let it macerate in a closed vessel, in a warm place, for forty-eight hours. Then pack it in a cylindrical percolator, and gradually pour menstruum upon it, until the tincture passes but slightly imbued with bitterness. By means of a water-bath, distil off the Alcohol from the tincture, and, having placed the residue in a porcelain capsule, evaporate it, on a water-bath, to a pilular consistence.

EXTRACTUM NUCIS VOMICÆ FLUIDUM.

FLUID EXTRACT OF NUX VOMICA.

Nux Vomica, in No. 60 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix *eight* (8) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *one hundred* (100) *cubic centimeters* of the mixture, let it macerate in a closed vessel, in a warm place, for forty-eight hours. Then pack it firmly in a cylindrical percolator, and gradually pour menstruum upon it, until the tincture passes but slightly imbued with bitterness. Reserve the first *ninety* (90) *cubic centimeters* of the percolate. By means of a water-bath, distil off the Alcohol from the remainder, and evaporate the residue to a soft extract ; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM OPII.

EXTRACT OF OPIUM.

Opium, *one hundred parts*	100
Water, *seven hundred and fifty parts*	750
Glycerin, *a sufficient quantity.*	

Cut the Opium into small pieces, let it macerate for twenty-four hours in *one hundred and fifty* (150) *parts* of the Water, and reduce it to a soft mass by trituration. Express the liquid from it, and treat the residue again in the same manner with *one hundred and fifty* (150) *parts* of the Water. Repeat the maceration and expression three times more, using a fresh portion of the Water each time. Having mixed the liquids, filter the mixture, and evaporate, by means of a water-bath, to a pilular consistence. Lastly, weigh the Extract and thoroughly incorporate with it, while still warm, *five* (5) *per cent.* of Glycerin.

Preparations: Emplastrum Opii. Trochisci Glycyrrhizæ et Opii.

EXTRACTUM PAREIRÆ FLUIDUM.

FLUID EXTRACT OF PAREIRA.

Pareira, in No. 40 powder, *one hundred grammes*	100
Glycerin, *twenty grammes*	20
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *eighty* (80) *grammes* of Diluted Alcohol, and, having moistened the powder with *forty* (40) *grammes* of the mixture, pack it firmly in a cylindrical percolator ; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and afterward, Diluted Alcohol, until the Pareira is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate. By means of a water-bath, distil off the Alcohol from the remainder, and evaporate the residue to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM PHYSOSTIGMATIS.

EXTRACT OF PHYSOSTIGMA.

Physostigma, in No. 40 powder, *one hundred parts*	100
Alcohol, *a sufficient quantity.*	

Moisten the powder with *forty* (40) *parts* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until *three hundred* (300) *parts* of tincture are obtained, or the Physostigma is exhausted. Reserve the first *ninety* (90) *parts* of the percolate; evaporate the remainder, at a temperature not exceeding 50° C. (122° F.), to *ten* (10) *parts*, mix this with the reserved portion, and evaporate, at or below the before-mentioned temperature, in a porcelain capsule, on a water-bath, to a pilular consistence.

EXTRACTUM PILOCARPI FLUIDUM.

FLUID EXTRACT OF PILOCARPUS.

Pilocarpus, in No. 40 powder, *one hundred grammes*	100
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*....	100

Moisten the powder with *thirty-five* (35) *grammes* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until the Pilocarpus is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder, at a temperature not exceeding 50° C. (122° F.), to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM PODOPHYLLI.

EXTRACT OF PODOPHYLLUM.

Podophyllum, in No. 60 powder, *one hundred parts*............	100
Alcohol,	
Water, each, *a sufficient quantity*.	

Mix Alcohol and Water in the proportion of *three* (3) *parts* of Alcohol and *one* (1) *part* of Water, and, having moistened the powder with *thirty* (30) *parts* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until *five hundred* (500) *parts* of tincture have passed. By means of a water-bath, distil off the Alcohol from the tincture, and evaporate the residue to a pilular consistence.

EXTRACTUM PODOPHYLLI FLUIDUM.

FLUID EXTRACT OF PODOPHYLLUM.

Podophyllum, in No. 60 powder, *one hundred grammes*..........	100
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*....	100

Mix *three* (3) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *thirty* (30) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Podophyllum is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate; by means of a water-bath, distil off the Alcohol from the remainder; dissolve the residue in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters*.

EXTRACTUM PRUNI VIRGINIANÆ FLUIDUM.

FLUID EXTRACT OF WILD CHERRY.

Wild Cherry, in No. 20 powder, *one hundred grammes*	100
Diluted Alcohol,	
Glycerin,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Mix *two* (2) *parts* of Water with *one* (1) *part* of Glycerin, and, having moistened the powder with *fifty* (50) *grammes* of the mixture, pack it loosely in a cylindrical percolator, cover the latter well, and set it aside for forty-eight hours. Then pack the damp powder firmly in the percolator, and pour on enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until the Wild Cherry is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate and set it aside ; collect the next *one hundred and twenty* (120) *cubic centimeters* separately, and evaporate to a thin syrup. By means of a water-bath, distil off the Alcohol from the remainder of the percolate and evaporate the residue to a thin syrup. Unite the two syrupy liquids, and evaporate them, on a water-bath, to a soft extract ; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM QUASSIÆ.

EXTRACT OF QUASSIA.

Quassia, in No. 20 powder, *one hundred parts*	100
Glycerin,	
Water, each, *a sufficient quantity.*	

Moisten the powder with *forty* (40) *parts* of Water, pack it firmly in a conical percolator, and gradually pour Water upon it until the infusion passes but slightly imbued with bitterness. Reduce the liquid to three-fourths of its weight, by boiling, and strain ; then, by means of a water-bath, evaporate to a pilular consistence. Lastly, weigh the Extract, and thoroughly incorporate with it, while still warm, *five* (5) *per cent.* of Glycerin.

EXTRACTUM QUASSIÆ FLUIDUM.

FLUID EXTRACT OF QUASSIA.

Quassia, in No. 60 powder, *one hundred grammes*	100
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Moisten the powder with *forty* (40) *grammes* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until the Quassia is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM RHEI.

EXTRACT OF RHUBARB.

Rhubarb, in No. 30 Powder, *one hundred parts*	100
Alcohol,	
Water, each, *a sufficient quantity.*	

Mix Alcohol and Water in the proportion of *three* (3) *parts* of Alcohol and *one* (1) *part* of Water, and, having moistened the powder with *forty* (40) *parts* of the mixture, pack it firmly in a conical percolator; then gradually pour the menstruum upon it until the tincture passes nearly tasteless. Reserve the first *one hundred* (100) *parts* of the percolate, and set it aside in a warm place, until it is reduced by spontaneous evaporation to *fifty* (50) *parts.* Evaporate the remainder of the percolate, in a porcelain vessel, by means of a water-bath, at a temperature not exceeding 70° C. (158° F.), to the consistence of syrup; mix this with the reserved portion, and continue the evaporation until the mixture is reduced to a pilular consistence.

EXTRACTUM RHEI FLUIDUM.

FLUID EXTRACT OF RHUBARB.

Rhubarb, in No. 30 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Mix *three* (3) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *forty* (40) *grammes* of the mixture, pack it firmly in a conical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Rhubarb is exhausted. Reserve the first *seventy-five* (75) *cubic centimeters* of the percolate, and evaporate the remainder, at a temperature not exceeding 70° C. (158° F.), to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

Preparation: Mistura Rhei et Sodæ.

EXTRACTUM RHOIS GLABRÆ FLUIDUM.

FLUID EXTRACT OF RHUS GLABRA.

Rhus Glabra, in No. 40 powder, *one hundred grammes*	100
Glycerin, *ten grammes*	10
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *ninety* (90) *grammes* of Diluted Alcohol, and, having moistened the powder with *thirty-five* (35) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and afterward, Diluted Alcohol, until the Rhus Glabra is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM ROSÆ FLUIDUM.

FLUID EXTRACT OF ROSE.

Red Rose, in No. 30 powder, *one hundred grammes*	100
Glycerin, *ten grammes*	10
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *ninety* (90) *grammes* of Diluted Alcohol, and, having moistened the powder with *forty* (40) *grammes* of the mixture, pack it firmly in a cylindrical glass percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and afterward, Diluted Alcohol, until the Red Rose is exhausted. Reserve the first *seventy-five* (75) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM RUBI FLUIDUM.

FLUID EXTRACT OF RUBUS.

Rubus, in No. 60 powder, *one hundred grammes*	100
Glycerin, *twenty grammes*	20
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *forty-five* (45) *grammes* of Alcohol and *thirty-five* (35) *grammes* of Water, and, having moistened the powder with *thirty-five* (35) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and afterward, a mixture of Alcohol and Water, made in the proportion of *nine* (9) *parts* of Alcohol to *seven* (7) *parts* of Water, until the Rubus is exhausted. Reserve the first *seventy* (70) *cubic centimeters* of the percolate; by means of a water-bath, distil off the Alcohol from the remainder, and evaporate the residue to a soft extract; dissolve this in the reserved portion, and add enough of a mixture of Alcohol and Water, using the last-named proportions, to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

Preparation: Syrupus Rubi.

EXTRACTUM RUMICIS FLUIDUM.

FLUID EXTRACT OF RUMEX.

Rumex, in No. 40 powder, *one hundred grammes*	100
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*....	100

Moisten the powder with *thirty-five* (35) *grammes* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until the Rumex is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM SABINÆ FLUIDUM.

FLUID EXTRACT OF SAVINE.

Savine, in No. 40 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*....	100

Moisten the powder with *twenty-five* (25) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Savine is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

Preparation: Ceratum Sabinæ.

EXTRACTUM SANGUINARIÆ FLUIDUM.

FLUID EXTRACT OF SANGUINARIA.

Sanguinaria, in No. 60 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *thirty* (30) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Sanguinaria is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM SARSAPARILLÆ COMPOSITUM FLUIDUM.

COMPOUND FLUID EXTRACT OF SARSAPARILLA.

Sarsaparilla, in No. 30 powder, *seventy-five grammes*	75
Glycyrrhiza, in No. 30 powder, *twelve grammes*	12
Sassafras Bark, in No. 30 powder, *ten grammes*	10
Mezereum, in No. 30 powder, *three grammes*	3
Glycerin, *ten grammes*	10
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *thirty* (30) *grammes* of Alcohol and *sixty* (60) *grammes* of Water, and, having moistened the mixed powders with *forty* (40) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and afterward, a mixture of Alcohol and Water, made in the proportion of *one* (1) *part* of Alcohol to *two* (2) *parts* of Water, until the powder is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough of a mixture of Alcohol and Water, using the last-named proportions, to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM SARSAPARILLÆ FLUIDUM.

FLUID EXTRACT OF SARSAPARILLA.

Sarsaparilla, in No. 30 powder, *one hundred grammes*	100
Glycerin, *ten grammes*	10
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *thirty* (30) *grammes* of Alcohol and *sixty* (60) *grammes* of Water, and, having moistened the powder with *forty* (40) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and afterward, a mixture of Alcohol and Water, made in the proportion of *one* (1) *part* of Alcohol to *two* (2) *parts* of Water, until the Sarsaparilla is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough of a mixture of Alcohol and Water, using the last-named proportions, to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM SCILLÆ FLUIDUM.

FLUID EXTRACT OF SQUILL.

Squill, in No. 20 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity*,	
To make *one hundred cubic centimeters*	100

Moisten the powder with *twenty* (20) *grammes* of Alcohol, and pack it in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Squill is exhausted. Reserve the first *seventy-five* (75) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM SCUTELLARIÆ FLUIDUM.

FLUID EXTRACT OF SCUTELLARIA.

Scutellaria, in No. 40 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix *one* (1) *part* of Alcohol with *two* (2) *parts* of Water, and, having moistened the powder with *thirty-five* (35) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Scutellaria is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM SENEGÆ FLUIDUM.

FLUID EXTRACT OF SENEGA.

Senega, in No. 40 powder, *one hundred grammes*	100
Water of Ammonia, *two grammes*	2
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix *two* (2) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *forty-five* (45) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Senega is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add, first, the Water of Ammonia, and afterward, enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

Preparation: Syrupus Senegæ.

EXTRACTUM SENNÆ FLUIDUM.

FLUID EXTRACT OF SENNA.

Senna, in No. 30 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix *three* (3) *parts* of Alcohol with *four* (4) *parts* of Water, and, having moistened the powder with *forty* (40) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Senna is exhausted. Reserve the first *eighty* (80) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM SERPENTARIÆ FLUIDUM.

FLUID EXTRACT OF SERPENTARIA.

Serpentaria, in No. 60 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix *three* (3) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *thirty* (30) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Serpentaria is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM SPIGELIÆ FLUIDUM.

FLUID EXTRACT OF SPIGELIA.

Spigelia, in No. 60 powder, *one hundred grammes*	100
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *thirty* (30) *grammes* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until the Spigelia is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM STILLINGIÆ FLUIDUM.

FLUID EXTRACT OF STILLINGIA.

Stillingia, in No. 40 powder, *one hundred grammes*	100
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Moisten the powder with *thirty* (30) *grammes* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until the Stillingia is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM STRAMONII.

EXTRACT OF STRAMONIUM.

Stramonium Seed, in No. 40 powder, *one hundred parts*	100
Diluted Alcohol, *a sufficient quantity.*	

Moisten the powder with *thirty* (30) *parts* of Diluted Alcohol, and pack it firmly in a cylindrical percolator; then add enough Diluted Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty eight hours. Then allow the percolation to proceed, gradually adding Diluted Alcohol, until *three hundred* (300) *parts* of tincture are obtained, or the Stramonium Seed is exhausted. Reserve the first *ninety* (90) *parts* of the percolate, evaporate the remainder, at a temperature not exceeding 50° C. (122° F.), to *ten* (10) *parts*, mix the residue with the reserved portion in a porcelain capsule, and, by means of a water-bath, evaporate, at or below the before-mentioned temperature, to a pilular consistence.

Preparation: Unguentum Stramonii.

EXTRACTUM STRAMONII FLUIDUM.

FLUID EXTRACT OF STRAMONIUM.

Stramonium Seed, in No. 40 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix *three* (3) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *twenty* (20) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Stramonium Seed is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder, at a temperature not exceeding 50° C. (122° F.), to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM TARAXACI.

EXTRACT OF TARAXACUM.

Fresh Taraxacum, gathered in September, *a convenient quantity*,
Water, *a sufficient quantity*.

Slice the Taraxacum, and bruise it in a stone mortar, sprinkling on it a little Water, until reduced to a pulp; then express and strain the juice, and evaporate it in a vacuum-apparatus, or in a shallow porcelain dish, by means of a water-bath, to a pilular consistence.

EXTRACTUM TARAXACI FLUIDUM.

FLUID EXTRACT OF TARAXACUM.

Taraxacum, in No. 30 powder, *one hundred grammes*...........	100
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*....	100

Mix *two* (2) *parts* of Alcohol with *three* (3) *parts* of Water, and, having moistened the powder with *thirty* (30) *grammes* of the mixture, pack it firmly in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Taraxacum is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate; by means of a water-bath, distil off the Alcohol from the remainder, and evaporate the residue to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters*.

EXTRACTUM TRITICI FLUIDUM.

FLUID EXTRACT OF TRITICUM.

Triticum, finely cut, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters* ...	100

Pack the Triticum in a cylindrical percolator, and pour Boiling Water upon it until it is exhausted. Evaporate the percolate to *eighty* (80) *cubic* *centimeters*, and, having added to it *twenty* (20) *cubic centimeters* of Alcohol, mix well and set it aside for forty-eight hours. Then filter the liquid and add to the filtrate enough of a mixture composed of *four* (4) *parts* of Water and *one* (1) *part* of Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM UVÆ URSI FLUIDUM.

FLUID EXTRACT OF UVA URSI.

Uva Ursi, in No. 30 powder, *one hundred grammes*	100
Glycerin, *ten grammes*	10
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix the Glycerin with *ninety* (90) *grammes* of Diluted Alcohol, and, having moistened the powder with *thirty-five* (35) *grammes* of the mixture, pack it firmly in a cylindrical percolator ; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding, first, the remainder of the menstruum, and afterward, Diluted Alcohol, until the Uva Ursi is exhausted. Reserve the first *seventy* (70) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract ; dissolve this in the reserved portion, and add enough Diluted Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM VALERIANÆ FLUIDUM.

FLUID EXTRACT OF VALERIAN.

Valerian, in No. 60 powder, *one hundred grammes*	100
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred cubic centimeters*	100

Mix *two* (2) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *thirty* (30) *grammes* of the mixture, pack it firmly in a cylindrical percolator ; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Valerian is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM VERATRI VIRIDIS FLUIDUM.

FLUID EXTRACT OF VERATRUM VIRIDE.

Veratrum Viride, in No. 60 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity*,	
To make *one hundred cubic centimeters*....	100

Moisten the powder with *thirty* (30) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Veratrum Viride is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM VIBURNI FLUIDUM.

FLUID EXTRACT OF VIBURNUM.

Viburnum, in No. 60 powder, *one hundred grammes*............	100
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred cubic centimeters*....	100

Mix *two* (2) *parts* of Alcohol with *one* (1) *part* of Water, and, having moistened the powder with *thirty* (30) *grammes* of the mixture, pack it moderately in a cylindrical percolator; then add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding menstruum, until the Viburnum is exhausted. Reserve the first *eighty-five* (85) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM XANTHOXYLI FLUIDUM.

FLUID EXTRACT OF XANTHOXYLUM.

Xanthoxylum, in No. 40 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters....*	100

Moisten the powder with *twenty-five* (25) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Xanthoxylum is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

EXTRACTUM ZINGIBERIS FLUIDUM.

FLUID EXTRACT OF GINGER.

Ginger, in No. 40 powder, *one hundred grammes*	100
Alcohol, *a sufficient quantity,*	
To make *one hundred cubic centimeters....*	100

Moisten the powder with *twenty-five* (25) *grammes* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until the Ginger is exhausted. Reserve the first *ninety* (90) *cubic centimeters* of the percolate, and evaporate the remainder to a soft extract; dissolve this in the reserved portion, and add enough Alcohol to make the Fluid Extract measure *one hundred* (100) *cubic centimeters.*

Preparation: Syrupus Zingiberis.

FEL BOVIS.

OX GALL.

The fresh gall of *Bos Taurus* Linné (Class, *Mammalia ;* Order, *Ruminantia*).

A brownish-green or dark green, somewhat viscid liquid, having a peculiar odor, a disagreeable, bitter taste, and a neutral or faintly alkaline reaction. Sp. gr. 1.018–1.028. A mixture of 2 drops of Ox Gall and 10 C.c. of water, when treated, first, with a drop of freshly prepared solution of 1 part of sugar in 4 parts of water, and afterward with sulphuric acid, cautiously added, until the precipitate first formed is redissolved, gradually acquires a cherry-red color, changing, successively, to carmine, purple, and violet.

Preparations : Fel Bovis Inspissatum. Fel Bovis Purificatum.

FEL BOVIS INSPISSATUM.

INSPISSATED OX GALL.

Fresh Ox Gall, *one hundred parts*	100
To make *fifteen parts*	15

Heat the Ox Gall to a temperature not exceeding 80° C. (176° F.), strain it through muslin, and evaporate the strained liquid, on a water-bath, in a porcelain capsule, to *fifteen* (15) *parts.*

FEL BOVIS PURIFICATUM.

PURIFIED OX GALL.

Fresh Ox Gall, *three parts*	3
Alcohol, *one part*	1

Evaporate the Ox Gall in a porcelain capsule, on a water-bath, to *one* (1) *part*, then add to it the Alcohol, agitate the mixture thoroughly, and let it stand, well covered, for twenty-four hours. Decant the clear solution, filter the remainder, and, having mixed the liquids and distilled off the Alcohol, evaporate to a pilular consistence.

A yellowish-green, soft solid, having a peculiar odor, and a partly sweet and partly bitter taste. It is very soluble in water and in alcohol. A solution of 1 part of Purified Ox Gall in about 100 parts of water behaves toward sugar and sulphuric acid as the solution mentioned under Ox Gall (see *Fel Bovis*). The aqueous solution of Purified Ox Gall should yield no precipitate on the addition of alcohol.

FERRI CARBONAS SACCHARATUS.

SACCHARATED CARBONATE OF IRON.

[SACCHARATED FERROUS CARBONATE.]

Sulphate of Iron, *ten parts*	10
Bicarbonate of Sodium, *seven parts*	7
Sugar, in fine powder, *sixteen parts*	16
Distilled Water, *a sufficient quantity.*	

Dissolve the Sulphate of Iron in *forty* (40) *parts* of hot Distilled Water, and the Bicarbonate of Sodium in *one hundred* (100) *parts* of warm Distilled Water, filter the solutions separately, and allow them to cool. Add the solution of Sulphate of Iron gradually to the solution of Bicarbonate of Sodium contained in a capacious flask, and mix thoroughly by shaking. Fill up the flask with boiling Distilled Water and set the mixture aside for two hours. Draw off the supernatant liquid from the precipitate by means of a siphon, and then fill the flask again with hot Distilled Water and shake it. Pour off the clear liquid and repeat the operation until the decanted liquid gives but a slight turbidity with test-solution of chloride of barium. Transfer the drained precipitate to a porcelain capsule containing the Sugar, and mix intimately; evaporate the mixture to dryness, by means of a water-bath, and reduce the product to powder.

Keep the powder in small, well-stopped vials.

A greenish-gray powder, gradually oxidized by contact with air, odorless, having at first a sweetish, afterward a slightly ferruginous taste, and a neutral reaction. It is only partially soluble in water; but completely soluble, with copious evolution of carbonic acid gas, in diluted hydrochloric acid, forming a clear, yellow liquid. This solution affords a blue precipitate with test-solution either of ferrocyanide or of ferricyanide of potassium, but should not be rendered more than slightly turbid by test-solution of chloride of barium (limit of sulphate).

If 8 Gm. of the Saccharated Carbonate of Iron be dissolved in water with an excess of hydrochloric acid, and the solution mixed with 33 C.c. of the volumetric solution of bichromate of potassium, the mixture should still afford a blue color or precipitate with test-solution of ferricyanide of potassium (presence of at least 15 per cent. of ferrous carbonate).

FERRI CHLORIDUM.

CHLORIDE OF IRON.

$Fe_2Cl_6.12H_2O$; 540.2. — $Fe_2Cl_3.12HO$; 270.1.

[FERRIC CHLORIDE.]

Iron, in the form of fine wire and cut into small pieces, *fifteen parts*	15
Hydrochloric Acid, *eighty-six parts*	86
Nitric Acid,	
Distilled Water, each, *a sufficient quantity.*	

Put the Iron Wire into a flask capable of holding double the volume of the intended product, pour upon it *fifty-four* (54) *parts* of Hydrochloric Acid previously diluted with *twenty-five* (25) *parts* of Water, and let the mixture stand until effervescence ceases ; then heat it to the boiling point, filter through paper, and, having rinsed the flask and Iron Wire with a little boiling Distilled Water, pass the rinsings through the filter. To the filtered liquid add *twenty-seven* (27) *parts* of Hydrochloric Acid and pour the mixture slowly and gradually, in a stream, into *eight* (8) *parts* of Nitric Acid, contained in a capacious porcelain vessel. After effervescence ceases, apply heat, by means of a sand-bath, until the liquid is free from nitrous odor ; then test a small portion with freshly prepared test solution of ferricyanide of potassium. Should this reagent produce a blue color, add a little more Nitric Acid and evaporate off the excess. Then add the remaining *five* (5) *parts* of Hydrochloric Acid, and enough Distilled Water to make the whole weigh *sixty* (60) *parts*, and set this aside, covered with glass, until it forms a solid, crystalline mass.

Lastly, break it into pieces, and keep the fragments in a glass-stoppered bottle, protected from light.

Orange-yellow, crystalline pieces, very deliquescent, odorless or having a faint odor of hydrochloric acid, a strongly styptic taste and an acid reaction. Freely and wholly soluble in water, alcohol, or ether. On ignition, the salt suffers partial decomposition. The dilute aqueous solution yields a brown-red precipitate with water of ammonia, a blue one with test-solution of ferrocyanide of potassium, and a white one, insoluble in nitric acid, with test-solution of nitrate of silver.

If the iron be completely precipitated from a solution of the salt by an excess of water of ammonia, the filtrate should not yield either a white or a dark colored precipitate with hydrosulphuric acid (zinc, copper), nor should it leave a fixed residue on evaporation and gentle ignition (fixed alkalies). On adding a clear crystal of ferrous sulphate to a cooled mixture of equal volumes of concentrated sulphuric acid and a moderately dilute solution of the salt, the crystal should not become colored brown, nor should there be a brownish-black zone developed around it (abs. of Nitric Acid). A few drops of a solution of the salt, added to freshly prepared test-solution of ferricyanide of potassium, should impart to the latter a pure greenish-brown color without a trace of blue (abs. of ferrous salt). A one per cent. solution of the salt in distilled water, when boiled in a test-tube, should remain clear (abs. of oxychloride).

FERRI CITRAS.

CITRATE OF IRON.

$Fe_2(C_6H_5O_7)_2.6H_2O$; 597.8. — $Fe_2O_3,C_{12}H_5O_{11}.6HO$; 298.9.

[FERRIC CITRATE.]

Solution of Citrate of Iron, *a convenient quantity.*

Evaporate the Solution, at a temperature not exceeding 60° C. (140° F.), to the consistence of syrup, and spread it on plates of glass, so that, when dry, the salt may be obtained in scales.

Transparent, garnet-red scales, permanent in the air, odorless, having a very faint, ferruginous taste, and an acid reaction. Slowly but completely soluble in cold water, and readily so in boiling water; insoluble in alcohol. When strongly heated, the salt emits fumes having the odor of burnt sugar, and finally leaves a residue amounting to 26 per cent. of the original weight, which should not have an alkaline reaction (abs. of fixed alkalies).

The aqueous solution of the salt is not precipitated, but is rendered darker by water of ammonia. If heated with solution of potassa, it affords a brown-red precipitate, without evolving any vapor of ammonia. On adding test-solution of ferrocyanide of potassium to an aqueous solution of the salt, a bluish-green color or precipitate is produced, which is increased and rendered dark blue by the subsequent addition of hydrochloric acid (difference from citrate of iron and ammonium). If a solution of the salt be deprived of its iron by boiling with an excess of solution of potassa, the concentrated and cooled filtrate precipitated with test-solution of chloride of calcium, and the new filtrate heated to boiling, a white, granular precipitate will be produced.

Preparation: Ferri et Quininæ Citras.

FERRI ET AMMONII CITRAS.

CITRATE OF IRON AND AMMONIUM.

[Ammonio-Ferric Citrate.]

Solution of Citrate of Iron, *three parts*	3
Water of Ammonia, *one part*	1

Mix the Solution of Citrate of Iron with the Water of Ammonia, evaporate the mixture, at a temperature not exceeding 60° C. (140° F.), to the consistence of syrup, and spread it on plates of glass, so that, when dry, the salt may be obtained in scales.

Keep the product in well-stopped bottles, in a dark place.

Transparent, garnet-red scales, deliquescent on exposure to damp air, odorless, having a saline, mildly ferruginous taste, and a neutral reaction. Readily and wholly soluble in water; insoluble in alcohol. When strongly heated, the salt emits fumes having the odor of burnt sugar, and finally leaves a residue amounting to about 25 per cent. of the original weight, which should not have an alkaline reaction (abs. of fixed alkalies).

The aqueous solution of the salt is not precipitated, but is rendered darker by water of ammonia. If heated with solution of potassa, it affords a brown-red precipitate, and vapor of ammonia is evolved. On adding test-solution of ferrocyanide of potassium to an aqueous solution of the salt, no blue color or precipitate is produced unless the solution is acidulated with hydrochloric acid (difference from citrate of iron). If a solution of the salt be deprived of its iron by boiling with an excess of solution of potassa, the concentrated and cooled filtrate precipitated with test-solution of chloride of calcium, and the new filtrate heated to boiling, a white, granular precipitate will be produced.

Preparations: Ferri et Strychninæ Citras. Liquor Ferri et Quininæ Citratis. Vinum Ferri Citratis.

FERRI ET AMMONII SULPHAS.

SULPHATE OF IRON AND AMMONIUM.

$Fe_2(NH_4)_2(SO_4)_4.24H_2O$; 963.8 — $Fe_2O_3,3SO_3.NH_4O,SO_3.24HO$; 481.9.

[Ammonio-Ferric Sulphate. Ammonio-Ferric Alum.]

Sulphate of Iron and Ammonium should be kept in well-stopped bottles.

Pale violet, octahedral crystals, efflorescent on exposure to air, odorless, having an acid, styptic taste, and a slightly acid reaction. Soluble in 3 parts of water at 15° C. (59° F.), and in 0.8 part of boiling water; insoluble in alcohol. When strongly heated, the crystals fuse, lose their water of crystallization, swell up, and finally leave a pale brown residue. The aqueous solution of the salt yields a blue precipitate with test-solution of ferrocyanide of potassium. With solution of potassa it affords a brown-red precipitate, and, if the mixture be heated, vapor of ammonia is evolved. With test-solution of chloride of barium it produces a white precipitate insoluble in hydrochloric acid.

If all the iron be precipitated from a solution of the salt by heating with an excess of solution of potassa, the resulting filtrate, when mixed and heated with test-solution of chloride of ammonium in excess, should not yield a white, gelatinous precipitate (abs. of aluminium).

FERRI ET AMMONII TARTRAS.

TARTRATE OF IRON AND AMMONIUM.

[Ammonio-Ferric Tartrate.]

Solution of Tersulphate of Iron, *ninety parts*	90
Tartaric Acid, *sixty parts*	60
Water of Ammonia, *seventy two parts*	72
Carbonate of Ammonium,	
Distilled Water,	
Water, each, *a sufficient quantity.*	

To the Water of Ammonia, previously diluted with *one hundred and eighty* (180) *parts* of cold Water, add, constantly stirring, the Solution of Tersulphate of Iron, previously diluted with *nine hundred* (900) *parts* of cold Water. Pour the whole on a wet muslin strainer, allow the precipitate to drain, then return it to the vessel and mix it intimately with *one thousand* (1000) *parts* of cold Water. Again drain it on the strainer and repeat the operation once, or oftener, until the washings cause but a slight cloudiness with test-solution of chloride of barium. Then allow the precipitate to drain completely. Dissolve one half of the Tartaric Acid in *one hundred and thirty* (130) *parts* of Distilled Water, neutralize the solution exactly with Carbonate of Ammonium, then add the other half of the Tartaric Acid and dissolve by the application of a gentle heat. Then, while continuing the heat, which should not exceed 60° C. (140° F.), add the magma of hydrated oxide of iron, in small portions at a time, until it is no longer dissolved. Filter the solution, evaporate it, at the before-mentioned temperature, to the consistence of syrup, and spread it on plates of glass, so that, when dry, the salt may be obtained in scales.

Keep the product in well-stopped bottles, in a dark place.

Transparent scales, varying in color from garnet-red to yellowish-brown, only slightly deliquescent, without odor, having a sweetish and slightly ferruginous taste, and a neutral reaction. Very soluble in water, but insoluble in alcohol. When strongly heated, the salt emits fumes having the odor of burnt sugar, and finally leaves a residue amounting to about 25 per cent. of the original weight, which should not have an alkaline reaction (abs. of fixed alkalies).

The aqueous solution of the salt is not precipitated, but is rendered darker by water of ammonia. If heated with solution of potassa, it yields a brown-red precipitate, and vapor of ammonia is evolved. On adding test-solution of ferrocyanide of potassium to an aqueous solution of the salt, no blue color or precipitate is produced unless the solution is acidulated with hydrochloric acid. If a solution of the salt be deprived of iron, by boiling with an excess of solution of soda, the concentrated and cooled filtrate, when supersaturated with acetic acid, will afford a white, crystalline precipitate.

FERRI ET POTASSII TARTRAS.

TARTRATE OF IRON AND POTASSIUM.

[Potassio-Ferric Tartrate.]

Solution of Tersulphate of Iron, *twelve parts*	12
Bitartrate of Potassium, *four parts*	4
Distilled Water, *thirty-two parts*	32
Water of Ammonia,	
Water, each, *a sufficient quantity.*	

To *ten* (10) *parts* of Water of Ammonia, diluted with *twenty* (20) *parts* of cold Water, add, constantly stirring, the Solution of Tersulphate of Iron, previously diluted with *one hundred* (100) *parts* of cold Water. Pour the whole on a wet muslin strainer, allow the precipitate to drain, then return it to the vessel and mix it intimately with *one hundred and twenty* (120) *parts* of cold Water. Again drain it on the strainer, and repeat the operation once, or oftener, until the washings produce but a slight cloudiness with test-solution of chloride of barium. Put the drained precipitate into a stoneware or porcelain vessel, add to it *thirty-two* (32) *parts* of Distilled Water, heat the mixture, on a water-bath, to a temperature not exceeding 60° C. (140° F.), add the Bitartrate of Potassium, and stir until the hydrated oxide of iron is dissolved. Filter while hot, and let the filtrate stand in a cool, dark place for twenty-four hours; then stir it well with a porcelain or glass spatula, so that the precipitate which has formed in it may be thoroughly incorporated with the liquid. Now add, very cautiously, just enough Water of Ammonia to dissolve the precipitate, evaporate the solution, in a porcelain vessel, to the consistence of thick syrup, and spread it on plates of glass, so that, when dry, the salt may be obtained in scales.

Keep the product in well-stopped bottles, in a dark place.

Transparent, garnet-red scales, only slightly deliquescent, without odor, having a sweetish, slightly ferruginous taste, and a neutral reaction. Very soluble in water, but insoluble in alcohol. When strongly heated, the salt emits fumes having the odor of burnt sugar, and finally leaves a dark brown residue, having a strongly alkaline reaction and effervescing with acids.

The aqueous solution of the salt is not precipitated, but is rendered darker by water of ammonia. If heated with solution of potassa, it affords a brown-red precipitate, and a slight odor of ammonia is evolved. On adding test-solution of ferrocyanide of potassium to an aqueous solution of the salt, no blue color or precipitate is produced, unless the solution is acidulated with hydrochloric acid. If a solution of the salt be deprived of its iron by boiling with an excess of solution of soda, the concentrated and cooled filtrate, when supersaturated with acetic acid, will afford a white, crystalline precipitate.

FERRI ET QUININÆ CITRAS.

CITRATE OF IRON AND QUININE.

[Ferri et Quiniæ Citras, *Pharm.*, 1870.]

Citrate of Iron, *eighty-eight parts*	88
Quinine, dried at 100° C. (212° F.), until it ceases to lose weight, *twelve parts*	12
Distilled Water, *a sufficient quantity,*	
To make *one hundred parts*	100

Dissolve the Citrate of Iron in *one hundred and sixty* (160) *parts* of Distilled Water, by heating on a water-bath, at a temperature not exceeding 60° C. (140° F.). To this solution add the Quinine and stir constantly until it is dissolved. Lastly, evaporate the solution, at a temperature not exceeding 60° C. (140° F.), to the consistence of syrup, and spread it on plates of glass, so that, when dry, the salt may be obtained in scales.

Keep the product in well-stopped bottles, in a dark place.

Transparent, thin scales, varying in color from reddish-brown to yellowish-brown, slowly deliquescent on exposure to air, odorless, having a bitter and mildly ferruginous taste, and a slightly acid reaction. Slowly but wholly soluble in cold water, more readily so in hot water, and but slightly soluble in alcohol. When strongly heated, the salt emits fumes having the odor of burnt sugar, and finally leaves a residue which should not have an alkaline reaction (abs. of fixed alkalies). On supersaturating the aqueous solution of the salt with a slight excess of water of ammonia, the color of the liquid is deepened and a white, curdy precipitate is thrown down, which is soluble in ether and answers to the reactions of quinine (see *Quinina*). A small portion of the filtrate, when mixed with test-solution of ferrocyanide of potassium, does not produce a blue color or precipitate unless it is acidulated with hydrochloric acid. If another portion of the filtrate be deprived of its iron by boiling with an excess of potassa, the concentrated and cooled filtrate precipitated by test-solution of chloride of calcium, and the new filtrate heated to boiling, a white, granular precipitate will be produced. On heating the solution of the salt with potassa, no vapor of ammonia should be evolved.

The salt contains 12 per cent. of dry quinine. It may be assayed as follows: Dissolve 4 Gm. of the scales in 30 C.c. of water, in a capsule, with the aid of heat. Cool, and transfer the solution to a glass separator, rinsing the capsule; add an aqueous solution of 0.5 Gm. of tartaric acid, and then solution of soda in decided excess. Extract the alkaloid by agitating the mixture with four successive portions of chloroform, each of 15 C.c. Separate the chloroformic layers, mix them, evaporate them in a weighed capsule, on a water-bath, and dry the residue at a temperature of 100° C. (212° F.). It should weigh 0.48 Gm.

FERRI ET STRYCHNINÆ CITRAS.

CITRATE OF IRON AND STRYCHNINE.

[Ferri et Strychniæ Citras, *Pharm.*, 1870.]

Citrate of Iron and Ammonium, *ninety-eight parts*	98
Strychnine, *one part*	1
Citric Acid, *one part*	1
Distilled Water, *one hundred and twenty parts*	120
To make *one hundred parts*	100

Dissolve the Citrate of Iron and Ammonium in *one hundred* (100) *parts* of Distilled Water, and the Strychnine, together with the Citric Acid, in *twenty* (20) *parts* of Distilled Water. Mix the two solutions, evaporate the mixture, by means of a water-bath, at a temperature not exceeding 60° C. (140° F.), to the consistence of syrup, and spread it on plates of glass, so that, when dry, the salt may be obtained in scales.

Keep the product in well-stopped bottles, in a dark place.

Transparent, garnet-red scales, deliquescent on exposure to air, odorless, having a bitter and slightly ferruginous taste, and a slightly acid reaction. Readily and wholly soluble in water, and but slightly soluble in alcohol. When strongly heated, the salt emits fumes having the odor of burnt sugar, and finally leaves a residue which should not have an alkaline reaction (fixed alkalies). On heating the aqueous solution of the salt with solution of potassa, a brown-red precipitate is produced and vapor of ammonia is evolved. If 1 Gm. of the salt be dissolved in 4 C.c. of water, in a small test-tube, then 1 C.c. of solution of potassa added, and the mixture shaken with 2 C.c. of chloroform, the residue left on evaporating the chloroform will answer to the reactions of strychnine (see *Strychnina*). On adding test-solution of ferrocyanide of potassium to a dilute aqueous solution of the salt, no blue color or precipitate is produced unless the solution is acidulated with hydrochloric acid. If a solution of the salt be deprived of its iron by boiling with an excess of solution of potassa, the concentrated and cooled filtrate precipitated with test-solution of chloride of calcium, and the new filtrate heated to boiling, a white, granular precipitate will be produced.

The salt contains 1 per cent. of Strychnine.

FERRI HYPOPHOSPHIS.

HYPOPHOSPHITE OF IRON.

$Fe_2(H_2PO_2)_6$; 501.8. — $Fe_2O_3,(2HO,PO)_3$; 250.9.

[FERRIC HYPOPHOSPHITE.]

A white or grayish-white powder, permanent in the air, odorless and nearly tasteless, only slightly soluble in water, more readily so in presence of hypophosphorous acid, freely soluble in hydrochloric acid or in solution of citrate of sodium, forming with the latter a green solution. When strongly heated in a dry test-tube, the salt evolves a spontaneously inflammable gas (phosphoretted hydrogen), and, on ignition, leaves behind ferric pyrophosphate. The salt is readily oxidized by nitric acid or other oxidizing agents. It should be completely soluble in acetic acid (abs. of ferric phosphate). This solution, when mixed with test-solution of oxalate of ammonium, should not afford a white precipitate soluble in hydrochloric acid (abs. of calcium).

FERRI IODIDUM SACCHARATUM.

SACCHARATED IODIDE OF IRON.

[SACCHARATED FERROUS IODIDE.]

Iron, in the form of fine wire, and cut into small pieces, *six parts*	6
Iodine, *seventeen parts*	17
Distilled Water, *twenty parts*	20
Sugar of Milk, *eighty parts*	80

Mix the Iron, Iodine, and Distilled Water in a flask of thin glass, shake the mixture occasionally until the reaction ceases, and the solution has acquired a green color and lost the smell of Iodine ; then filter it through a wetted filter into a porcelain capsule containing *forty* (40) *parts* of Sugar of Milk. Rinse the flask and Iron Wire with a little Distilled Water, pass the rinsings through the filter into the capsule, and evaporate, on a water-bath, constantly stirring, until a dry mass remains. Transfer the mass quickly to a heated iron mortar containing the remainder of the Sugar of Milk, and reduce the whole to powder.

Transfer the powder at once to small, well-dried bottles, which must be securely stopped, and kept in a cool and dark place.

A yellowish-white or grayish powder, very hygroscopic, odorless, having a sweetish, ferruginous taste, and a slightly acid reaction. Soluble in 7 parts of water at 15° C. (59° F.), forming an almost clear solution ; only partially soluble in alcohol. When strongly heated, the compound swells up, chars, evolves the odor of iodine and of burnt sugar, and, on, ignition, leaves a residue which should yield nothing soluble to water (abs. of salts of alkalies). The aqueous solution yields a blue precipitate with test-solution of ferricyanide of potassium. If mixed with some gelatinized starch and afterward with a little chlorine water, the solution assumes a deep blue color. This color should not be developed in the aqueous solution by gelatinized starch alone (abs. of free iodine).

On mixing an aqueous solution of 5 Gm. of Saccharated Iodide of Iron with a solution of 1 Gm. of nitrate of silver, and filtering, the filtrate should still produce a precipitate or cloudiness with test-solution of nitrate of silver (presence of at least 20 per cent. of ferrous iodide).

FERRI LACTAS.

LACTATE OF IRON.

$Fe(C_3H_5O_3)_2.3H_2O$; 287.9. — $FeO,C_6H_5O_5.3HO$; 143.95.

[FERROUS LACTATE.]

Pale greenish-white, crystalline crusts or grains, permanent in the air, odorless, having a mild, sweetish, ferruginous taste, and a slightly acid reaction. Soluble in 40 parts of water at 15° C. (59° F.), and in 12 parts of boiling water; almost insoluble in alcohol, but freely soluble in solution of citrate of sodium, yielding a green solution. When heated on platinum foil, the salt froths up, gives out thick, white, acrid fumes, and chars, a brown-red residue being finally left. The aqueous solution yields a blue precipitate with test-solution of ferricyanide of potassium. If the salt be boiled for fifteen minutes with nitric acid of the sp. gr. 1.200, white, granular mucic acid will be deposited on cooling the liquid. An aqueous solution of the salt should not be rendered more than faintly opalescent by test-solution of acetate of lead (limit of sulphate, citrate, tartrate, etc.).

Preparation: Syrupus Hypophosphitum cum Ferro.

FERRI OXALAS.

OXALATE OF IRON.

$FeC_2O_4.H_2O$; 161.9. — $FeO,C_2O_3.HO$; 80.95.

[FERROUS OXALATE.]

A pale yellow, or lemon-yellow, crystalline powder, permanent in the air, odorless and nearly tasteless, very slightly soluble in cold or hot water, but soluble in cold, concentrated hydrochloric acid, and in hot, diluted sulphuric acid. When heated in contact with air, it decomposes with a faint combustion, and, on ignition, leaves a residue, amounting to not less than 49.3 per cent. of the original weight. On heating the salt with excess of test-solution of carbonate of sodium, it is decomposed, yielding a precipitate, which, when dissolved in diluted hydrochloric acid, affords a blue precipitate with test-solution of ferricyanide of potassium, and a filtrate which, when supersaturated with acetic acid, yields, with test-solution of chloride of calcium, a white precipitate soluble in hydrochloric acid.

FERRI OXIDUM HYDRATUM.

HYDRATED OXIDE OF IRON.

$Fe_2(HO)_6$; 213.8. — $Fe_2O_3.3HO$; 106.9.

[FERRIC HYDRATE.]

Solution of Tersulphate of Iron, *ten parts*	10
Water of Ammonia, *eight parts*..............................	8
Water, *a sufficient quantity.*	

To the Water of Ammonia, previously diluted with *twenty* (20) *parts* of cold Water, add, constantly stirring, the Solution of Tersulphate of Iron, previously diluted with *one hundred* (100) *parts* of cold Water. Pour the whole on a wet muslin strainer, and allow the precipitate to drain; then return it to the vessel and mix it intimately with *one hundred and twenty* (120) *parts* of cold Water. Again drain it on the strainer and repeat the operation. Lastly, mix the precipitate with enough cold Water to make the mixture weigh *twenty* (20) *parts.*

When Hydrated Oxide of Iron is to be made in haste for use as an antidote, the washing may be performed more quickly, though less perfectly, by pressing the strainer forcibly with the hands until no more liquid passes, and then adding enough Water to make the whole weigh about *twenty* (20) *parts.*

Note.—The ingredients for preparing Hydrated Oxide of Iron, as an antidote, should always be kept on hand, in bottles holding, respectively, about *ten* (10) *troy ounces* or *three hundred* (300) *grammes* of Solution of Tersulphate of Iron, and about *eight* (8) *troy ounces* or *two hundred and forty* (240) *grammes* of Water of Ammonia.

Hydrated Oxide of Iron, thus prepared, is a brown-red magma, wholly soluble in hydrochloric acid, without effervescence.

Preparations: Emplastrum Ferri. Trochisci Ferri.

FERRI OXIDUM HYDRATUM CUM MAGNESIA.

HYDRATED OXIDE OF IRON WITH MAGNESIA.

	Grains.	Grammes.
Solution of Tersulphate of Iron, *one thousand grains*	1000	65.00
Magnesia, *one hundred and fifty grains*	150	10.00
Water, *a sufficient quantity.*		

Mix the Solution of Tersulphate of Iron with twice its weight of Water, and keep the mixture in a well-stopped bottle.

Rub the Magnesia with Water to a smooth and thin mixture, transfer this to a bottle capable of holding *thirty-two* (32) *fluid ounces* or about *one* (1) *liter,* and fill it up with Water.

When the preparation is wanted for use, mix the two liquids by adding the Magnesia mixture, gradually, to the Iron solution, and shake them together until a homogeneous mass results.

Note.—The diluted Solution of Tersulphate of Iron, and the mixture of Magnesia with Water, should always be kept on hand, ready for immediate use.

FERRI PHOSPHAS.

PHOSPHATE OF IRON.

[Ferric Phosphate.]

Citrate of Iron, *five parts*	5
Phosphate of Sodium, *six parts*	6
Distilled Water, *ten parts*	10

Dissolve the Citrate of Iron in the Distilled Water by heating on a water-bath. To this solution add the Phosphate of Sodium and stir constantly, until it is dissolved. Evaporate the solution, at a temperature not exceeding 60° C. (140° F.), to the consistence of thick syrup, and spread it on plates of glass, so that, when dry, the salt may be obtained in scales.

Keep the product in well-stopped bottles, in a dark place.

Thin, bright green, transparent scales, permanent in dry air when excluded from light, but turning dark on exposure to light, odorless, having an acidulous, slightly saline taste, and a slightly acid reaction. Freely and completely soluble in water, but insoluble in alcohol. The aqueous solution of the salt is rendered blue by test-solution of ferrocyanide of potassium, but does not yield a blue precipitate with this reagent, unless it has been acidulated with hydrochloric acid. When heated with solution of potassa in excess, a brown-red precipitate is thrown down, and the filtrate, after being supersaturated with acetic acid, yields a light yellow precipitate with test-solution of nitrate of silver (difference from pyrophosphate).

100 parts of the salt represent about 13.5 parts of metallic iron.

Preparation: Syrupus Ferri, Quininæ et Strychninæ Phosphatum.

FERRI PYROPHOSPHAS.

PYROPHOSPHATE OF IRON.

[Ferric Pyrophosphate.]

Citrate of Iron, *nine parts*	9
Pyrophosphate of Sodium, *ten parts*	10
Distilled Water, *eighteen parts*	18

Dissolve the Citrate of Iron in the Distilled Water by heating on a water-bath. To this solution add the Pyrophosphate of Sodium and stir constantly until it is dissolved. Evaporate the solution, at a temperature not exceeding 60° C. (140° F.), to the consistence of thick syrup, and spread it on plates of glass, so that, when dry, the salt may be obtained in scales.

Keep the product in well-stopped bottles, in a dark place.

Thin, apple-green, transparent scales, permanent in dry air when excluded from light, but turning dark on exposure to light, odorless, having an acidulous, slightly saline taste, and a slightly acid reaction. Freely and completely soluble in water, but insoluble in alcohol. The aqueous solution of the salt is rendered blue by test-solution of ferrocyanide of potassium, but does not yield a blue precipitate with this reagent, unless it has been acidulated with hydrochloric acid. When heated with solution of potassa in excess, a brown-red precipitate is thrown down, and the filtrate, after being supersaturated with acetic acid, yields a white precipitate with test-solution of nitrate of silver (difference from phosphate).

100 parts of the salt represent about 11.5 parts of metallic iron.

FERRI SULPHAS.

SULPHATE OF IRON.

$FeSO_4.7H_2O$; 277.9 — $FeO,SO_3.7HO$; 138.95.

[FERROUS SULPHATE.]

Sulphate of Iron should be kept in well-closed vessels.

Large, pale bluish-green, monoclinic prisms, efflorescent and absorbing oxygen on exposure to air, without odor, having a saline, styptic taste, and an acid reaction. Soluble in 1.8 parts of water at 15° C. (59° F.), and in 0.3 part of boiling water; insoluble in alcohol. When quickly heated, the crystals fuse. When slowly heated to 115° C. (239° F.), they fall to powder and lose 38.86 per cent. of their weight (water of crystallization). The aqueous solution of the salt affords a blue precipitate with test-solution of ferricyanide of potassium, and a white precipitate, insoluble in hydrochloric acid, with test-solution of chloride of barium. When acidulated with sulphuric acid, the solution should yield no colored precipitate (copper), and not more than a faint white turbidity with hydrosulphuric acid (limit of ferric salt).

If 4.167 Gm. of Sulphate of Iron are dissolved in water acidified with diluted sulphuric acid, and the solution treated with volumetric solution of bichromate of potassium, until a drop no longer gives a blue color with test-solution of ferricyanide of potassium, the required number of C.c. of the volumetric solution multiplied by *two* (2), equals the percentage of unoxidized ferrous sulphate in crystals.

Preparations: Ferri Sulphas Exsiccatus. Ferri Sulphas Præcipitatus.

FERRI SULPHAS EXSICCATUS.

DRIED SULPHATE OF IRON.

$FeSO_4.H_2O$; 169.9. — $FeO,SO_3.HO$; 84.95.

[DRIED FERROUS SULPHATE.]

Sulphate of Iron, in coarse powder, *a convenient quantity*.

Expose the Sulphate of Iron, in an unglazed earthen vessel, to a moderate heat, occasionally stirring, until it has effloresced. Then increase the heat to 149° C. (300° F.), and maintain it at that temperature until the salt ceases to lose weight. Lastly, reduce the residue to fine powder, and keep it in well-stopped bottles.

A grayish-white powder, soluble in water with the exception of a small residue, and answering to the reactions and tests of sulphate of iron (see *Ferri Sulphas*).

100 parts of crystallized sulphate of iron yield about 61 per cent. of the dried salt.

Preparation: Pilulæ Aloes et Ferri.

FERRI SULPHAS PRÆCIPITATUS.

PRECIPITATED SULPHATE OF IRON.

$FeSO_4.7H_2O$; 277.9. — $FeO,SO_3.7HO$; 138.95.

[PRECIPITATED FERROUS SULPHATE.]

Sulphate of Iron, *one hundred parts*	100
Distilled Water, *one hundred and seventy parts*	170
Sulphuric Acid, *four parts*	4
Alcohol, *a sufficient quantity.*	

Dissolve the Sulphate of Iron in the Distilled Water, previously mixed with the Sulphuric Acid, and filter the solution. Allow the filtrate to become cold, pour it gradually, with constant stirring, into an equal volume of Alcohol, and set the mixture aside for one day in a well-covered vessel. Drain the crystalline powder, which has settled, in a funnel, wash it with Alcohol, until the washings cease to redden blue litmus paper, fold it in a piece of muslin and press it gently. Finally, spread the powder on bibulous paper and dry it quickly in the sunlight, or in a dry-room, at the ordinary temperature, and keep it in well-stopped bottles.

A very pale bluish-green, crystalline powder, efflorescent in dry air, but, when in contact with moisture, becoming gradually oxidized, without odor, having a saline and styptic taste, and an acid reaction. Soluble in 1.8 parts of water at 15° C. (59° F.) and in 0.3 part of boiling water; insoluble in alcohol.

It should respond to the same reactions and tests as sulphate of iron (see *Ferri Sulphas*).

If 4.167 Gm. of Precipitated Sulphate of Iron are dissolved in water acidified with diluted sulphuric acid, and the solution treated with volumetric solution of bichromate of potassium, until a drop no longer gives a blue color with test-solution of ferricyanide of potassium, the required number of C.c. of the volumetric solution, multiplied by *two* (2), equals the percentage of unoxidized ferrous sulphate in crystals.

FERRI VALERIANAS.

VALERIANATE OF IRON.

$Fe_2(C_5H_9O_2)_6$; 717.8. — $Fe_2O_3.3C_{10}H_9O_3$; 358.9.

[FERRIC VALERIANATE.]

Valerianate of Iron should be preserved in small, well-stopped vials, in a cool and dark place.

A dark tile-red, amorphous powder, permanent in dry air, having a faint odor of valerianic acid, and a mildly styptic taste. Insoluble in cold water, but readily soluble in alcohol. Boiling water decomposes it, setting free the valerianic acid and leaving ferric hydrate. When slowly heated, the salt parts with its acid without fusing, but, when rapidly heated, it fuses and gives off inflammable vapors having the odor of butyric acid. On ignition, ferric oxide remains. Mineral acids decompose the Valerianate, forming the respective ferric salts and liberating valerianic acid.

FERRUM.

IRON.

Fe ; 55.9. — *Fe ;* 27.95.

Metallic Iron, in the form of fine, bright, and non-elastic wire.

FERRUM REDUCTUM.

REDUCED IRON.

[Ferrum Redactum, *Pharm.*, 1870.]

A very fine, grayish-black, lustreless powder, permanent in dry air, without odor or taste, and insoluble in water or alcohol. When ignited in contact with air, it is converted into ferric oxide. When treated with diluted sulphuric acid, it causes the evolution of nearly odorless hydrogen gas, and, on being warmed, it is dissolved without leaving a residue.

If 1 Gm. of Reduced Iron be digested with 3.5 Gm. of iodine, 2.5 Gm. of iodide of potassium, and 50 C.c. of distilled water for two hours, the resulting filtrate should have a green color, and should not be rendered blue by gelatinized starch (presence of at least 80 per cent. of metallic iron).

FICUS.

FIG.

The fleshy receptacle of *Ficus Carica* Linné (Nat. Ord., *Urticaceæ, Artocarpeæ*), bearing fruit upon its inner surface.

Compressed, of irregular shape, fleshy, covered with an efflorescence of sugar; of a sweet, fruity odor, and a very sweet, mucilaginous taste. When softened in water, figs are pear-shaped, with a scar or short stalk at the base, and a small scaly orifice at the apex ; hollow internally ; the inner surface covered with numerous, yellowish, hard achenes.

FŒNICULUM.

FENNEL.

The fruit of *Fœniculum vulgare* Gaertner (Nat. Ord., *Umbelliferæ, Orthospermæ*).

Oblong, nearly cylindrical, slightly curved, one-sixth to one-third of an inch (4 to 8 millimeters) long, brownish or greenish-brown ; readily separable into the two mericarps, each with five light brown, obtuse ribs, four oil-tubes on the back, and two or four oil-tubes upon the flat face ; odor and taste aromatic, anise-like.

FRANGULA.

FRANGULA.

[BUCKTHORN.]

The bark of *Rhamnus Frangula* Linné (Nat. Ord., *Rhamnaceæ*), collected at least one year before being used.

Quilled, about one twenty-fifth of an inch (1 millimeter) thick; outer surface gray-brown, or blackish-brown, with numerous, small, whitish, transversely-elongated, suberous warts; inner surface smooth, pale brownish-yellow; fracture in the outer layer short, of a purplish tint; in the inner layer fibrous and pale yellow; nearly inodorous; taste sweetish and bitter.

Preparation: Extractum Frangulæ Fluidum.

GALBANUM.

GALBANUM.

A gum-resin obtained from *Ferula galbaniflua* Boissier et Buhse, and probably from other allied plants (Nat. Ord., *Umbelliferæ, Orthospermæ*).

In tears from the size of a pin's head to that of a pea, and larger; mostly agglutinated, forming a more or less hard mass; externally yellowish, or pale brown; internally milk-white, bluish-white, or yellowish, with a waxy lustre; odor peculiar, balsamic; taste bitter and acrid.

When moistened with alcohol, Galbanum acquires a purple color on the addition of a little hydrochloric acid.

Preparations: Emplastrum Asafœtidæ. Emplastrum Galbani. Pilulæ Galbani Compositæ.

GALLA.

NUTGALL.

Excrescences on *Quercus lusitanica* Webb, var. *infectoria* De Candolle (Nat. Ord., *Cupuliferæ*), caused by the punctures and deposited ova of *Cynips Gallæ tinctoriæ* Olivier (Class, *Insecta;* Order, *Hymenoptera*).

Sub-globular, three-quarters of an inch (2 centimeters) or less in diameter, more or less tuberculated above, otherwise smooth, heavy, hard; often with a circular hole near the middle, communicating with the central cavity; blackish olive-green or blackish-gray; fracture granular, grayish; in the centre a cavity containing either the partly developed insect, or pulverulent remains left by it; nearly inodorous, taste strongly astringent.

Light, spongy and whitish-colored Nutgalls should be rejected.

Preparations: Tinctura Gallæ. Unguentum Gallæ.

GAULTHERIA.

GAULTHERIA.

[WINTERGREEN.]

The leaves of *Gaultheria procumbens* Linné (Nat. Ord., *Ericaceæ*).

Short-petiolate, obovate or roundish-oval, about an inch and a half (4 centimeters) long, and three-quarters of an inch (2 centimeters) or more broad, mucronate, slightly serrate, with appressed teeth; coriaceous, smooth, glossy-green above, pale beneath; odor fragrant; taste aromatic and astringent.

GELSEMIUM.

GELSEMIUM.

[YELLOW JASMINE.]

The rhizome and rootlets of *Gelsemium sempervirens* Aiton (Nat. Ord., *Loganiaceæ*).

Cylindrical, long, or cut in sections, occasionally an inch and a quarter (3 centimeters) thick, the roots much thinner; externally light brown-yellow with purplish-brown, longitudinal lines; tough; fracture splintery; bark thin, with silky bast-fibres, closely adhering to the pale yellowish, porous wood, having fine, medullary rays, and in the rhizome a thin pith; odor aromatic, heavy; taste bitter.

Preparations: Extractum Gelsemii Fluidum. Tinctura Gelsemii.

GENTIANA.

GENTIAN.

The root of *Gentiana lutea* Linné (Nat. Ord., *Gentianaceæ*).

In nearly cylindrical pieces or longitudinal slices, about one inch (25 millimeters) thick, the upper portion closely annulate, the lower portion longitudinally wrinkled; externally deep yellowish-brown; internally lighter; somewhat flexible and tough when damp; rather brittle when dry; fracture uneven; the bark rather thick, separated from the somewhat spongy meditullium by a black cambium line; odor peculiar, faint, more prominent when moistened; taste sweetish and persistently bitter.

Preparations: Extractum Gentianæ. Extractum Gentianæ Fluidum. Tinctura Gentianæ Composita.

GERANIUM.

GERANIUM.

[CRANESBILL.]

The rhizome of *Geranium maculatum* Linné (Nat. Ord., *Geraniaceæ*).

Horizontal, cylindrical, two to three inches (5 to 7 centimeters) long; half an inch (12 millimeters) or less thick; tuberculated, longitudinally wrinkled, dark brown; fracture short, pale red-brown; bark thin; wood-wedges yellowish, small, forming a circle near the cambium line; medullary rays broad; central pith large; rootlets thin, fragile; inodorous; taste astringent.

Preparation: Extractum Geranii Fluidum.

GLYCERINUM.

GLYCERIN.

[GLYCERINA, *Pharm.*, 1870.]

A liquid obtained by the decomposition of fats or fixed oils, and containing not less than 95 per cent. of absolute Glycerin [$C_3H_5(HO)_3$; 92. — $C_6H_5O_3.3HO$; 92].

A clear, colorless liquid, of syrupy consistence, oily to the touch, hygroscopic, without odor, very sweet and slightly warm to the taste, and neutral in reaction. It is soluble, in all proportions, in water and in alcohol, also in a mixture of 3 parts of alcohol and 1 part of ether, but insoluble in ether, chloroform, benzol, or fixed oils. Its sp. gr. should not be less than 1.250, corresponding to the presence of at least 95 per cent. of absolute Glycerin. In solution with water it is slowly vaporized, with steam, at 100° C. (212 F.); exposed alone to higher temperature, it yields acrid decomposition vapors of a characteristic odor, with a little Glycerin vapor, and at 290° C. (554° F.) it boils and is decomposed. If a fused bead of borax, on a loop of platinum wire, be moistened with Glycerin previously made slightly alkaline with diluted solution of soda, and after a few minutes held in a colorless flame, the latter will be tinted deep green.

Glycerin should be neutral to litmus paper. Upon warming a portion of 5 or 6 Gm. with half its weight of diluted sulphuric acid, no butyric or other acidulous odor should be developed. A portion of 2 or 3 Gm., gently warmed with an equal volume of sulphuric acid in a test-tube, should not become dark colored (abs. of cane-sugar). A portion of about 2 Gm., heated in a small, open porcelain or platinum capsule, upon a sand-bath, until it boils, and then ignited, should burn and vaporize so as to leave not more than a dark stain (abs. of sugars and dextrin, which leave a porous coal). A portion heated to about 85° C. (185° F.), with test-solution of potassio-cupric tartrate, should not give a decided yellowish-brown precipitate, and the same result should be obtained, if, before applying this test, another portion be boiled with a little diluted hydrochloric acid for half an hour (abs. of sugars). After full combustion no residue should be left (metallic salts). Diluted with 10 times its volume of distilled water, portions should give no precipitates or colors, when treated with test-solution of nitrate of silver, chloride of barium, chloride of calcium, sulphide of ammonium, or oxalate of ammonium (acrylic or hydrochloric, sulphuric, oxalic acid, iron, or calcium salts).

Preparations: Glyceritum Amyli. Glyceritum Vitelli. Mucilago Tragacanthæ.

GLYCERITUM AMYLI.

GLYCERITE OF STARCH.

Starch, *ten parts*	10
Glycerin, *ninety parts*	90
To make *one hundred parts*	100

Rub them together in a mortar until they are intimately mixed. Then transfer the mixture to a porcelain capsule, and apply a heat gradually raised to 140° C. (284° F.), and not exceeding 144° C. (291° F.), stirring constantly, until the starch granules are completely dissolved, and a translucent jelly is formed.

GLYCERITUM VITELLI.

GLYCERITE OF YOLK OF EGG.

[GLYCONIN.]

Fresh Yolk of Egg, *forty-five parts*	45
Glycerin, *fifty-five parts*	55
To make *one hundred parts*	100

Rub the Yolk of Egg with the Glycerin gradually added, until they are thoroughly mixed.

GLYCYRRHIZA.

GLYCYRRHIZA.

[LIQUORICE ROOT.]

The root of *Glycyrrhiza glabra* Linné (Nat. Ord., *Leguminosæ, Papilionaceæ*).

In long, cylindrical pieces, from one-fifth of an inch to one inch (5 to 25 millimeters) thick, longitudinally wrinkled, externally grayish-brown, warty; internally tawny-yellow; pliable, tough; fracture coarsely fibrous; bark rather thick; wood porous, but dense, in narrow wedges; medullary rays linear; taste sweet, somewhat acrid.

The underground stem, which is often present, has the same appearance, but contains a thin pith.

Preparations: Extractum Glycyrrhizæ Fluidum. Extractum Glycyrrhizæ Purum. Glycyrrhizinum Ammoniatum. Pulvis Glycyrrhizæ Compositus.

GLYCYRRHIZINUM AMMONIATUM.

AMMONIATED GLYCYRRHIZIN.

Glycyrrhiza, in No. 20 powder, *one hundred parts*	100
Water,	
Water of Ammonia,	
Sulphuric Acid, each, *a sufficient quantity.*	

Mix *ninety-five* (95) *parts* of Water with *five* (5) *parts* of Water of Ammonia, and, having moistened the powder with the mixture, macerate for twenty-four hours. Then pack it moderately in a cylindrical percolator and gradually pour Water upon it until *five hundred* (500) *parts* of percolate are obtained. Add to the percolate, slowly and while stirring, a sufficient quantity of Sulphuric Acid, so long as a precipitate is produced. Collect this on a strainer, wash it with cold Water, redissolve it in Water with the aid of Water of Ammonia, filter, if necessary, and again add Sulphuric Acid so long as a precipitate is produced. Collect this, wash it, dissolve it in a sufficient quantity of Water of Ammonia previously diluted with an equal volume of Water, and spread the clear solution upon plates of glass, so that, on drying, the product may be obtained in scales.

Dark brown or brownish-red scales, inodorous, of a very sweet taste, and soluble in water and in alcohol. The aqueous solution, when heated with potassa or soda, evolves vapor of ammonia. On supersaturating the aqueous solution with an acid, a substance (Glycyrrhizin) is precipitated, which, when dissolved in hot water, forms a jelly on cooling. This substance, when washed with diluted alcohol and dried, appears as an amorphous, yellow powder, of a strong, bitter-sweet taste, and an acid reaction.

GOSSYPII RADICIS CORTEX.

COTTON ROOT BARK.

The bark of the root of *Gossypium herbaceum* Linné, and of other species of *Gossypium* (Nat. Ord., *Malvaceæ*).

In thin, flexible bands or quilled pieces; outer surface brownish-yellow, with slight, longitudinal ridges or meshes, small, black, circular dots, or short, transverse lines, and dull, brownish-orange patches, from the abrasion of the thin cork; inner surface whitish, of a silky lustre, finely striate; bast-fibres long, tough, and separable into papery layers; inodorous; taste very slightly acrid and faintly astringent.

Preparation: Extractum Gossypii Radicis Fluidum.

GOSSYPIUM.

COTTON.

[Purified Cotton. Absorbent Cotton.]

The hairs of the seed of *Gossypium herbaceum* Linné, and of other species of *Gossypium* (Nat. Ord., *Malvaceæ*), freed from adhering impurities and deprived of fatty matter.

White, soft, fine filaments, under the microscope appearing as flattened, hollow and twisted bands, spirally striate and slightly thickened at the edges: inodorous, tasteless, insoluble in water, alcohol, or ether; soluble in an ammoniacal solution of sulphate of copper.

Cotton should be perfectly free from all perceptible impurities, and, on combustion, should not leave more than 0.8 per cent. of ash. When thrown upon water, it should immediately absorb the latter and sink, and the water should not acquire either an acid or an alkaline reaction.

Preparation: Pyroxylinum.

GRANATUM.

POMEGRANATE.

The bark of the root of *Punica Granatum* Linné (Nat. Ord., *Granataceæ*).

In thin quills or fragments, from two to four inches (5 to 10 centimeters) long, little over one twenty-fifth of an inch (1 millimeter) thick; outer surface yellowish-gray, free from lichens; somewhat warty, or longitudinally and reticulately ridged; inner surface smooth, finely striate, grayish-yellow; fracture short, granular, greenish-yellow, indistinctly radiate; inodorous; taste astringent, very slightly bitter.

GRINDELIA.

GRINDELIA.

The leaves and flowering tops of *Grindelia robusta* Nuttall (Nat. Ord., *Compositæ*).

Leaves about two inches (5 centimeters) or less long, varying from broadly spatulate or oblong to lanceolate, sessile or clasping, obtuse, more or less sharply serrate, pale green, smooth, finely dotted, brittle; heads many-flowered; the involucre hemispherical, about half an inch (12 millimeters) broad, composed of numerous, imbricated, squarrosely-tipped scales; ray-florets yellow, ligulate, pistillate; disk-florets yellow, tubular, perfect; pappus consisting of about three awns of the length of the disk-florets; odor balsamic; taste pungently aromatic and bitter.

Preparation: Extractum Grindeliæ Fluidum.

GUAIACI LIGNUM.

GUAIACUM WOOD.

The heart-wood of *Guaiacum officinale* Linné, and of *Guaiacum sanctum* Linné (Nat. Ord., *Zygophyllaceæ*).

Heavy, hard, brown or greenish-brown, resinous, marked with irregular, concentric circles, surrounded by a yellowish alburnum, splitting irregularly; when heated, emitting a resinous odor; taste slightly acrid.

Guaiacum Wood is generally used in the form of raspings, which should be greenish-brown, containing few particles of a whitish color, and should acquire a dark blue-green color on the addition of nitric acid.

GUAIACI RESINA.

GUAIAC.

The resin of the wood of *Guaiacum officinale* Linné (Nat. Ord., *Zygophyllaceæ*).

In irregular masses, or sub-globular pieces, greenish-brown or reddish-brown, internally of a glassy lustre, transparent in thin splinters, fusible, feebly aromatic, somewhat acrid; powder grayish, turning green on exposure to air; soluble in solution of potassa and in alcohol; the alcoholic solution is colored blue on the addition of tincture of chloride of iron.

Preparations: Tinctura Guaiaci. Tinctura Guaiaci Ammoniata.

GUARANA.

GUARANA.

A dried paste prepared from the crushed or ground seeds of *Paullinia sorbilis* Martius (Nat. Ord., *Sapindaceæ*).

Sub-globular, or elliptic cakes, or cylindrical sticks, hard, dark reddish-brown; fracture uneven, somewhat glossy, showing fragments of seeds invested with a black testa; odor slight, peculiar, resembling chocolate; taste astringent, bitter; it is partly soluble in water, and in alcohol.

Preparation: Extractum Guaranæ Fluidum.

GUTTA-PERCHA

GUTTA-PERCHA.

The concrete exudation of *Isonandra Gutta* Hooker (Nat. Ord., *Sapotaceæ*).

Grayish or yellowish, often with red-brown streaks, hard, rather horny, somewhat flexible, but scarcely elastic; plastic above 60° C. (140° F.), very soft at the temperature of boiling water, insoluble in water or alcohol, soluble in chloroform, oil of turpentine, disulphide of carbon, benzin, or benzol.

Preparation: Liquor Gutta-Perchæ

HÆMATOXYLON.

HÆMATOXYLON.

[LOGWOOD.]

The heart-wood of *Hæmatoxylon campechianum* Linné (Nat. Ord., *Leguminosæ, Cæsalpinieae*).

Heavy, hard, externally purplish-black, internally brown-red, and marked with irregular, concentric circles, splitting irregularly; odor faint, agreeable; taste sweetish, astringent; colors the saliva dark pink.

Logwood is generally used in the form of small chips or coarse powder of a dark brown-red color, often with a greenish lustre.

Preparation: Extractum Hæmatoxyli.

HAMAMELIS.

HAMAMELIS.

[WITCHHAZEL.]

The leaves of *Hamamelis virginica* Linné (Nat. Ord., *Hamamelaceæ*), collected in autumn.

Short-petiolate, about four inches (10 centimeters) long, obovate or oval, slightly heart-shaped and oblique at the base, sinuate-toothed, nearly smooth; inodorous; taste astringent and bitter.

Preparation: Extractum Hamamelidis Fluidum.

HEDEOMA.

HEDEOMA.

[PENNYROYAL.]

The leaves and tops of *Hedeoma pulegioides* Persoon (Nat. Ord., *Labiatæ*).

Leaves opposite, short-petioled, about half an inch (12 millimeters) long, oblong-ovate, obscurely serrate, glandular beneath; branches roundish-quadrangular; flowers in small, axillary cymules, with a tubular-ovoid, two-lipped and five-toothed calyx, and a pale blue, spotted, two-lipped corolla, containing two sterile and two fertile, exserted stamens; odor strong, mint-like; taste warm and pungent.

HUMULUS.

HOPS.

The strobiles of *Humulus Lupulus* Linné (Nat. Ord., *Urticaceæ*, *Cannabineæ*).

Ovate, about an inch and a quarter (3 centimeters) long, consisting of a thin, hairy, undulated axis and many obliquely ovate, membranous, greenish scales, in the upper part reticulately veined, and toward the base parallel-veined, glandular, and surrounding a sub-globular achene; odor aromatic; taste bitter, aromatic and slightly astringent.

Preparation: Tinctura Humuli.

HYDRARGYRI CHLORIDUM CORROSIVUM.

CORROSIVE CHLORIDE OF MERCURY.

$HgCl_2$; 270.5. — *HgCl*; 135.25.

[CORROSIVE SUBLIMATE. MERCURIC CHLORIDE.]

Heavy, colorless, rhombic crystals or crystalline masses, permanent in the air, odorless, having an acrid and persistent, metallic taste, and an acid reaction. Soluble in 16 parts of water and in 3 parts of alcohol at 15° C. (59° F.); in 2 parts of boiling water, in 1.2 parts of boiling alcohol, and in 4 parts of ether. When heated to about 265° C. (509° F.), the salt fuses; at a higher temperature it sublimes unchanged, and without residue. The aqueous solution of the salt yields a reddish or yellowish precipitate on the addition of lime-water, and, on the addition of test-solution of nitrate of silver, a white precipitate insoluble in nitric acid but soluble in ammonia.

If 1 Gm. of the salt be dissolved in boiling water, then mixed with 5 C.c. of strong solution of soda (sp. gr. about 1.260) in a long test-tube, and about 0.5 Gm. of fine aluminium wire, cut into small pieces, be added (a loose plug of cotton being pushed a short distance down the tube), the generated gas should not impart any tint to paper wet with test-solution of nitrate of silver, and kept over the mouth of the test-tube for half an hour (abs. of arsenic).

HYDRARGYRI CHLORIDUM MITE.

MILD CHLORIDE OF MERCURY.

Hg_2Cl_2; 470.2. — Hg_2Cl; 235.1.

[CALOMEL. MERCUROUS CHLORIDE.]

A white, impalpable powder, permanent in the air, odorless and tasteless, and insoluble in water, alcohol, or ether. When strongly heated, it is wholly volatilized, without melting. The salt is blackened by water of ammonia. A portion heated in a dry glass tube with dried carbonate of sodium, yields metallic mercury.

Distilled water or alcohol, after having been agitated with a portion of the salt, and filtered, should not be affected by hydrosulphuric acid nor by test-solution of nitrate of silver (abs. of mercuric chloride), nor should the aqueous or alcoholic filtrate leave any residue on evaporation (fixed soluble impurities). On heating the salt with solution of potassa, no odor of ammonia should be evolved; and acetic acid, agitated with the salt and filtered, should remain unaffected by hydrosulphuric acid or by test-solution of nitrate of silver (abs. of and difference from ammoniated mercury).

Preparations: Pilulæ Antimonii Compositæ. Pilulæ Catharticæ Compositæ.

HYDRARGYRI CYANIDUM.

CYANIDE OF MERCURY.

$Hg(CN)_2$; 251.7. — HgC_2N; 125.85.

[MERCURIC CYANIDE.]

Cyanide of Mercury should be kept in well-stopped bottles, protected from light.

Colorless or white, prismatic crystals, becoming dark-colored on exposure to light, odorless, having a bitter, metallic taste, and a neutral reaction. Soluble in 12.8 parts of water and in 15 parts of alcohol at 15° C. (59° F.); in 3 parts of boiling water and in 6 parts of boiling alcohol. When slowly heated, the salt decomposes into metallic mercury and cyanogen gas, which is inflammable, burning with a purplish flame. On further heating, the blackish residue, containing globules of metallic mercury, is wholly dissipated. On adding hydrochloric acid to the aqueous solution, hydrocyanic acid vapor is evolved.

A five per cent. aqueous solution of the salt, when mixed with a dilute aqueous solution of iodide of potassium, should not yield a red or reddish precipitate soluble in excess of either liquid (abs. of mercuric chloride).

HYDRARGYRI IODIDUM RUBRUM.

RED IODIDE OF MERCURY.

HgI_2; 452.9. — HgI; 226.45.

[BINIODIDE OF MERCURY. MERCURIC IODIDE.]

Corrosive Chloride of Mercury, *nine parts*	9
Iodide of Potassium, *eleven parts*	11
Distilled Water, *a sufficient quantity.*	

Dissolve the Corrosive Chloride of Mercury in *one hundred and fifty* (150) *parts* of warm Distilled Water, and the Iodide of Potassium in *thirty* (30) *parts* of Distilled Water and filter the solutions separately. Add the solution of Corrosive Chloride of Mercury, when cold, to the solution of Iodide of Potassium, constantly stirring. Collect the precipitate on a filter, wash it with Distilled Water until the washings cease to give a precipitate with test-solution of nitrate of silver, and dry it, between sheets of bibulous paper, at a temperature not exceeding 40° C. (104° F.).

Keep the product in well-stopped bottles.

A scarlet-red, crystalline powder, permanent in the air, odorless and tasteless, almost insoluble in water, soluble in 130 parts of alcohol at 15° C. (59° F.), and in 15 parts of boiling alcohol; also soluble in solution of iodide of potassium, or of mercuric chloride. When heated, the salt turns yellow, but reassumes its red color on cooling. On ignition, it is wholly dissipated.

On heating the salt with solution of soda and adding a little sugar of milk, metallic mercury is precipitated. If the salt be heated with sulphuric acid and some black oxide of manganese, vapor of iodine will be given off. Water agitated with the salt, and filtered, should remain unaffected by test-solution of nitrate of silver (abs. of soluble iodide, chloride).

Preparation: Liquor Arsenii et Hydrargyri Iodidi.

HYDRARGYRI IODIDUM VIRIDE.

GREEN IODIDE OF MERCURY.

Hg_2I_2; 652.6. — Hg_2I; 326.3.

[PROTIODIDE OF MERCURY. MERCUROUS IODIDE.]

Mercury, *eight parts*	8
Iodine, *five parts*	5
Alcohol, *a sufficient quantity.*	

Pour about *three* (3) *parts* of Alcohol into a mortar containing the Mercury, add the Iodine in several, successive portions, and triturate the mixture, adding sufficient Alcohol from time to time to keep the mass constantly moist, and taking care that it shall neither become too hot, nor be exposed to light during the various steps of the process. Continue the trituration until all globules of Mercury have disappeared, and the mixture has become nearly dry and has acquired a greenish-yellow color. Then add sufficient Alcohol to reduce the whole to a thin paste, pour this into a bottle, let it stand for several days, and then wash the Iodide twice with about *fifty* (50) *parts* of Alcohol each time, and decant the washings. Transfer the Iodide to a filter and continue washing with Alcohol until the washings are no longer affected by hydrosulphuric acid. Lastly, dry the product in a dark place, between sheets of bibulous paper, at a temperature not exceeding 40° C. (104° F.).

Keep the product in well-stopped bottles, protected from light.

A dull green to greenish-yellow powder, becoming more yellow by exposure to air, and darker by exposure to light, odorless and tasteless, almost insoluble in water, and wholly insoluble in alcohol or ether. When strongly heated, the salt is volatilized without residue. When added to a solution of iodide of potassium, the salt is decomposed into metallic mercury which precipitates and mercuric iodide which dissolves.

If 10 C.c. of alcohol are shaken with 1 Gm. of the salt and filtered, the filtrate should not produce more than a very faint, transient opalescence, when dropped into water; and when 5 C.c. of the filtrate are evaporated from a white porcelain surface, not more than a very faint red stain should remain behind (abs. of more than traces of mercuric iodide).

HYDRARGYRI OXIDUM FLAVUM.

YELLOW OXIDE OF MERCURY.

HgO ; 215.7. — *HgO ;* 107.85.

[Yellow Mercuric Oxide.]

Corrosive Chloride of Mercury, *one part*	1
Solution of Potassa, *nine parts*	9
Distilled Water, *a sufficient quantity.*	

Dissolve the Corrosive Chloride of Mercury in *one hundred* (100) *parts* of warm Distilled Water and filter the solution. Pour the filtrate into the Solution of Potassa, previously diluted with *one hundred* (100) *parts* of Distilled Water, stirring constantly, and set the liquid containing the precipitate aside for twenty-four hours. Then decant the supernatant clear liquid from the precipitate, and wash the latter repeatedly by the affusion and decantation of Distilled Water, using about *one hundred* (100) *parts* of Water each time. Continue the washing on a strainer until the washings cease to be affected by test-solution of nitrate of silver. Let the precipitate drain, and dry it, between sheets of bibulous paper, in a dark place, at a temperature not exceeding 40° C. (104° F.).

Keep the product in well-stopped bottles, protected from light.

A light orange-yellow, heavy, impalpable powder, permanent in the air, and turning darker on exposure to light, odorless and tasteless, insoluble in water or alcohol, but wholly soluble in nitric or hydrochloric acid. When strongly heated, it assumes a red color; at a higher temperature it is decomposed, giving off oxygen and separating metallic mercury, and is finally volatilized without residue. When digested, on a water-bath, for fifteen minutes, with a strong solution of oxalic acid, it forms mercuric oxalate of a white color (diff. from red mercuric oxide).

Preparations: Oleatum Hydrargyri. Unguentum Hydrargyri Oxidi Flavi.

HYDRARGYRI OXIDUM RUBRUM.

RED OXIDE OF MERCURY.

HgO; 215.7. — HgO; 107.85.

[RED PRECIPITATE. RED MERCURIC OXIDE.]

Heavy, orange-red, crystalline scales, or a crystalline powder, becoming more yellow the finer it is divided, permanent in the air, odorless and tasteless, insoluble in water or alcohol, but wholly soluble in nitric or hydrochloric acid. When strongly heated, it turns darker, without emitting reddish fumes (abs. of nitrate); at a higher temperature it is decomposed, giving off oxygen and separating metallic mercury, and is finally volatilized without residue. When digested, on a water-bath, with a strong solution of oxalic acid, it does not change color within two hours (difference from yellow mercuric oxide).

Preparation: Unguentum Hydrargyri Oxidi Rubri.

HYDRARGYRI SUBSULPHAS FLAVUS.

YELLOW SUBSULPHATE OF MERCURY.

$Hg(HgO)_2SO_4$; 727.1. — $3HgO,SO_3$; 363.55.

[HYDRARGYRI SULPHAS FLAVA, *Pharm.*, 1870. BASIC MERCURIC SULPHATE. TURPETH MINERAL.]

Mercury, *ten parts*	10
Sulphuric Acid, *five parts*	5
Nitric Acid, *four parts*	4
Distilled Water, *a sufficient quantity.*	

Upon the Mercury, contained in a capacious flask, pour the Sulphuric Acid, then gradually add the Nitric Acid previously mixed with *three* (3) *parts* of Distilled Water, and digest at a gentle heat until reddish fumes are no longer given off. Transfer the mixture to a porcelain capsule, and heat it on a sand-bath, frequently stirring, until a dry, white mass remains. Reduce this to a fine powder and throw it, in small portions at a time, and constantly stirring, into *two hundred* (200) *parts* of boiling Distilled Water. When all has been added, continue the boiling for ten minutes, then allow the mixture to settle, decant the supernatant liquid, transfer the precipitate to a strainer, wash it with warm Distilled Water until the washings no longer have an acid reaction, and dry it in a moderately warm place.

A heavy, lemon-yellow powder, permanent in the air, odorless, and almost tasteless, insoluble in water or alcohol, but soluble in nitric or hydrochloric acid. When heated, the salt turns red, becoming yellow again on cooling. At a red heat it is volatilized without residue, evolving vapors of mercury and of sulphurous acid.

The salt should be soluble in 20 parts of hydrochloric acid without residue (abs. of mercurous salt).

HYDRARGYRI SULPHIDUM RUBRUM.

RED SULPHIDE OF MERCURY.

HgS; 231.7. — HgS; 115.85.

[HYDRARGYRI SULPHURETUM RUBRUM, *Pharm.*, 1870. RED MERCURIC SULPHIDE. CINNABAR.]

Brilliant, dark red, crystalline masses, or a fine, bright, scarlet powder, permanent in the air, odorless, and tasteless, insoluble in water, alcohol, nitric or hydrochloric acid, or in dilute solutions of alkalies. It is dissolved by nitrohydrochloric acid with separation of sulphur. When heated, the salt becomes brown and then black, but, on cooling, it reassumes its red color. At a higher temperature it takes fire, burns with a bluish flame, emitting the odor of burning sulphur, and is finally volatilized without residue. On dissolving the salt in nitrohydrochloric acid and adding an excess of stannous chloride, metallic mercury is precipitated.

If the salt be treated with warm solution of potassa, the filtrate, after being acidulated with hydrochloric acid, should not yield a yellow or orange-colored precipitate (arsenic, antimony), nor should it produce a colored precipitate with acetate of lead (chromates, iodides, or other sulphides). If the salt be digested with diluted nitric acid for five minutes, the filtrate, after being much diluted, should not be darkened by hydrosulphuric acid (abs. of red oxide of mercury or of lead).

HYDRARGYRUM.

MERCURY.

Hg; 199.7. — Hg; 99.85.

[QUICKSILVER.]

A shining, silver-white metal, liquid at temperatures above –40° C. (–40° F.), odorless and tasteless, and insoluble in ordinary solvents, but soluble in nitric acid without residue. Sp. gr. 13.5. At the common temperature it volatilizes very slowly, more rapidly as the temperature increases, and at 350° C. (662° F.) it boils, being finally volatilized without residue.

When globules of Mercury are dropped upon white paper, they should roll about freely, retaining their globular form, and leaving no streaks or traces. It should be perfectly dry and present a bright surface. On boiling 5 Gm. of distilled water with 5 Gm. of Mercury, and 4.5 Gm. of hyposulphite of sodium, in a test-tube, for about one minute, the Mercury should not lose its lustre and should not acquire more than a slightly yellowish shade (abs. of more than slight traces of foreign metals).

Preparations: Emplastrum Ammoniaci cum Hydrargyro. Emplastrum Hydrargyri. Hydrargyrum cum Creta. Massa Hydrargyri. Unguentum Hydrargyri.

HYDRARGYRUM AMMONIATUM.

AMMONIATED MERCURY.

NH_2HgCl; 251.1. — NH_2Hg_2Cl; 251.1.

[WHITE PRECIPITATE. MERCURAMMONIUM CHLORIDE.]

Corrosive Chloride of Mercury, *ten parts*	10
Water of Ammonia,	
Distilled Water, each, *a sufficient quantity*.	

Dissolve the Corrosive Chloride of Mercury in *two hundred* (200) *parts* of warm Distilled Water; filter the solution and allow it to cool. Pour the filtrate gradually, and constantly stirring, into *fifteen* (15) *parts* of Water of Ammonia, taking care that the latter shall remain in slight excess. Collect the precipitate upon a filter, and when the liquid has drained from it as much as possible, wash it twice with a mixture of *twenty* (20) *parts* of Distilled Water and *one* (1) *part* of Water of Ammonia. Finally, dry the precipitate, between sheets of bibulous paper, in a dark place, at a temperature not exceeding 30° C. (86° F.).

White, pulverulent pieces, or a white powder, permanent in the air, odorless and tasteless, and insoluble in water or alcohol. At a temperature below a red heat the salt is decomposed without fusion, and at a red heat it is wholly volatilized. When heated with solution of potassa, the salt becomes yellow and evolves vapor of ammonia. It is completely soluble in a cold solution of hyposulphite of sodium, with evolution of ammonia; on heating this solution for a short time, it separates red mercuric sulphide, which, on protracted boiling, turns black.

The salt should be soluble in hydrochloric acid without residue (mercurous salt), and without effervescence (carbonate). Its solution in acetic acid should not be rendered turbid by diluted sulphuric acid (lead).

Preparation: Unguentum Hydrargyri Ammoniati.

HYDRARGYRUM CUM CRETA.

MERCURY WITH CHALK.

Mercury, *thirty-eight parts*	38
Sugar of Milk, in fine powder, *twelve parts*	12
Prepared Chalk, *fifty parts*	50
Ether,	
Alcohol, each, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the Mercury, Sugar of Milk, and *twelve* (12) *parts* of the Chalk in a suitable mortar; moisten the mass with a mixture of *equal parts* of Ether and Alcohol, and triturate it briskly. Gradually add the remainder of the Chalk, dampen the powder occasionally with a mixture of Ether and Alcohol made in the same proportions as before, and continue the trituration until globules of Mercury are no longer visible under a magnifying power of ten diameters, and the powder is of a uniform, gray color, and dry.

HYDRASTIS.

HYDRASTIS.

[Golden Seal.]

The rhizome and rootlets of *Hydrastis canadensis* Linné (Nat. Ord., *Ranunculaceæ*).

Rhizome about an inch and a half (4 centimeters) long and a quarter of an inch (6 millimeters) thick; oblique, with short branches, somewhat annulate and longitudinally wrinkled; externally yellowish-gray; fracture short, waxy, bright reddish-yellow, with a thickish bark, about ten narrow wood-wedges, broad medullary rays and large pith. Rootlets thin, brittle, with a thick, yellow bark and subquadrangular, woody centre. Odor slight; taste bitter.

Preparations: Extractum Hydrastis Fluidum. Tinctura Hydrastis.

HYOSCYAMINÆ SULPHAS.

SULPHATE OF HYOSCYAMINE.

$(C_{17}H_{23}NO_3)_2.H_2SO_4$; 676. — $C_{34}H_{23}NO_6.HO,SO_3$; 338.

The neutral sulphate of an alkaloid prepared from Hyoscyamus. It should be kept in small, well-stopped vials.

Small golden-yellow, or yellowish-white scales or crystals, or a yellowish-white, amorphous powder, deliquescent on exposure to air, odorless, having a bitter and acrid taste, and a neutral reaction. Very soluble in water and in alcohol. When heated on platinum foil, the salt chars and is finally completely dissipated. An aqueous solution of the salt is not precipitated by test-solution of platinic chloride. With chloride of gold it yields a precipitate, which, when recrystallized from boiling water acidulated with hydrochloric acid, is deposited on cooling (without rendering the liquid turbid), in brilliant, lustrous, golden-yellow scales (difference from atropine). The aqueous solution yields, with test-solution of chloride of barium, a white precipitate insoluble in hydrochloric acid.

HYOSCYAMUS.

HYOSCYAMUS.

[HYOSCYAMI FOLIA, *Pharm.*, 1870. HENBANE.]

The leaves of *Hyoscyamus niger* Linné (Nat. Ord., *Solanaceæ*), collected from plants of the second year's growth.

Ovate, or ovate-oblong, sometimes ten inches (25 centimeters) long and four inches (10 centimeters broad; sinuate-toothed, the teeth large, oblong or triangular; grayish-green, glandular-hairy; midrib prominent; odor heavy, narcotic; taste bitter and somewhat acrid.

Preparations: Abstractum Hyoscyami. Extractum Hyoscyami Alcoholicum. Extractum Hyoscyami Fluidum. Tinctura Hyoscyami.

ICHTHYOCOLLA.

ISINGLASS.

The swimming-bladder of *Acipenser Huso* Linné, and of other species of *Acipenser* (Class, *Pisces*; Order, *Sturiones*).

In separate sheets, sometimes rolled, of a horny or pearly appearance; whitish or yellowish, semi-transparent, iridescent, inodorous, insipid; almost entirely soluble in boiling water and in boiling diluted alcohol.

The solution in 24 parts of boiling water forms, on cooling, a transparent jelly.

Preparation: Emplastrum Ichthyocollæ.

IGNATIA.

IGNATIA.

[Bean of St. Ignatius.]

The seed of *Strychnos Ignatii* Bergius (Nat. Ord., *Loganiaceæ*).

About an inch and a fifth (3 centimeters) long, oblong or ovate, irregularly angular, dull brownish or blackish, very hard, horny; fracture granular, irregular; the albumen somewhat translucent, enclosing an irregular cavity with an oblong embryo; inodorous; very bitter.

Preparations: Abstractum Ignatiæ. Tinctura Ignatiæ.

ILLICIUM.

ILLICIUM.

[Star-Anise.]

The fruit of *Illicium anisatum* Loureiro (Nat. Ord., *Magnoliaceæ*).

The fruit is pedunculate and consists of eight stellately arranged carpels, which are boat-shaped, about half an inch (12 millimeters) long, rather woody, wrinkled, straight-beaked, brown, dehiscent on the upper suture, internally red-brown, glossy, and with a single, flattish, oval, glossy, brown-yellow seed; odor anise-like; taste of the carpels sweet and aromatic, and of the seeds oily.

Star-anise should not be confounded with the very similar but poisonous fruit of *Illicium religiosum* Siebold, the carpels of which are more woody, shrivelled, and have a thin, mostly curved beak, a faint clove-like odor, and an unpleasant taste.

INFUSA.

INFUSIONS.

An ordinary Infusion, the strength of which is not directed by the physician, nor specified by the Pharmacopœia, shall be prepared by the following formula:

Take of

The Substance, coarsely comminuted, *ten parts*	10
Boiling Water, *one hundred parts*	100
Water, *a sufficient quantity,*	
To make *one hundred parts*	100

Put the substance into a suitable vessel, provided with a cover, pour upon it the Boiling Water, cover the vessel tightly, and let it stand two hours. Then strain, and pass enough Water through the strainer to make the Infusion weigh *one hundred* (100) *parts*.

Caution.—The strength of Infusions of energetic or powerful substances should be specially prescribed by the physician.

INFUSUM BRAYERÆ.

INFUSION OF BRAYERA.

Brayera, in No. 20 powder, *six parts*	6
Boiling Water, *one hundred parts*	100

Pour the Boiling Water upon the Brayera, and let it macerate in a covered vessel until cool.

This Infusion should be dispensed without straining.

INFUSUM CINCHONÆ.

INFUSION OF CINCHONA.

Cinchona, in No. 40 powder, *six parts*	6
Aromatic Sulphuric Acid, *one part*	1
Water, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the Acid with *fifty* (50) *parts* of Water, and moisten the powder with *three* (3) *parts* of the mixture ; pack it firmly in a conical glass percolator, and gradually pour upon it, first, the remainder of the mixture, and afterward, Water, until the Infusion weighs *one hundred* (100) *parts.*

When no variety of Cinchona is specified by the physician directing this Infusion, use Yellow Cinchona.

INFUSUM DIGITALIS.

INFUSION OF DIGITALIS.

Digitalis, in No. 20 powder, *three parts*	3
Cinnamon, in No. 20 powder, *three parts*	3
Boiling Water, *one hundred and eighty-five parts*	185
Alcohol, *fifteen parts*	15
Water, *a sufficient quantity,*	
To make *two hundred parts*	200

Pour the Boiling Water upon the mixed powders, and macerate for two hours in a covered vessel. Then strain, add the Alcohol, and pass enough Water through the strainer to make the Infusion weigh *two hundred* (200) *parts.*

INFUSUM PRUNI VIRGINIANÆ.

INFUSION OF WILD CHERRY.

Wild Cherry, in No. 40 powder, *four parts*	4
Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the powder with *six* (6) *parts* of Water, and macerate for one hour; then pack it firmly in a conical glass percolator, and gradually pour Water upon it until the Infusion weighs *one hundred* (100) *parts.*

INFUSUM SENNÆ COMPOSITUM.

COMPOUND INFUSION OF SENNA.

[BLACK DRAUGHT.]

Senna, *six parts*	6
Manna, *twelve parts*	12
Sulphate of Magnesium, *twelve parts*	12
Fennel, bruised, *two parts*	2
Boiling Water, *one hundred parts*	100
Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Pour the Boiling Water upon the solid ingredients and macerate in a covered vessel until cool. Then strain, and add enough Water through the strainer to make the Infusion weigh *one hundred* (100) *parts.*

INULA.

INULA.

[ELECAMPANE.]

The root of *Inula Helenium* Linné (Nat. Ord., *Compositæ*).

In transverse, concave slices or longitudinal sections, with overlapping bark, externally wrinkled and brown; flexible in damp weather; when dry, breaking with a short fracture; internally grayish, fleshy, slightly radiate and dotted with numerous shining, yellowish-brown resin-cells; odor peculiar, aromatic; taste bitter and pungent.

IODOFORMUM.

IODOFORM.

CHI_3; 392.8. — C_2HI_3; 392.8.

Iodoform should be kept in well-stopped bottles, in a cool place.

Small, lemon-yellow, lustrous crystals of the hexagonal system, having a saffron-like and almost insuppressible odor, and an unpleasant, slightly sweetish, iodine-like taste. Not perceptibly soluble in water, to which it imparts a slight odor and taste; soluble in 80 parts of alcohol at 15° C. (59° F.), in 12 parts of boiling alcohol, in 5.2 parts of ether, and in chloroform, benzol, benzin, disulphide of carbon, fixed or volatile oils. Its solutions have a neutral reaction. Sp. gr. 2.000. It sublimes slightly at ordinary temperatures, and distils slowly with water; at about 115° C. (239° F.) it melts to a brown liquid, and at a higher temperature yields vapors containing iodine and carbonaceous matter. If Iodoform be digested with an alcoholic solution of potassa, the mixture, when acidulated with diluted nitric acid, will give a blue color with gelatinized starch.

Distilled water shaken with Iodoform should not change the color of blue litmus paper, and when filtered, should give no precipitate with test-solution of nitrate of silver (abs. of iodide). Upon full combustion, Iodoform should leave no residue.

Preparation: Unguentum Iodoformi.

IODUM.

IODINE.

I; 126.6. — *I;* 126.6.

[IODINIUM, *Pharm.*, 1870.]

Iodine should be kept in glass-stoppered bottles, in a cool place.

Heavy, bluish-black, dry and friable, rhombic plates of a metallic lustre, a distinctive odor, a sharp and acrid taste, and a neutral reaction. Iodine imparts a deep brown, slowly evanescing stain to the skin, and slowly destroys vegetable colors. It is sparingly soluble in water, soluble in about 11 parts of alcohol at 15° C. (59° F.); very soluble in ether, disulphide of carbon and chloroform. It is slowly volatilized at ordinary temperatures. When heated to 114° C. (237.2° F.) it melts, and then rises in purple vapor, being gradually dissipated without leaving a residue. With gelatinized starch, in a cold solution, it produces a dark blue color.

A solution of Iodine in chloroform should be perfectly clear and limpid (abs. of moisture). When shaken with distilled water, it should not communicate to the latter more than a light brownish tinge, and no deep brown color (abs. of chloride of iodine). If the Iodine be removed from this dilute aqueous solution by agitation with disulphide of carbon, and, after the separation of the latter, some dilute solution of ferrous sulphate with a trace of ferric chloride be added, finally solution of soda, and the whole supersaturated with hydrochloric acid, no blue precipitate should make its appearance (abs. of cyanide of iodine). If Iodine be dissolved in sulphurous acid, the solution strongly supersaturated with ammonia, and completely precipitated by nitrate of silver, the filtrate, on being supersaturated with nitric acid, should not at once become more than faintly cloudy (abs. of more than traces of chlorine or bromine).

If 0.633 Gm. of Iodine, with 1 Gm. of iodide of potassium, be dissolved in 25 C.c.

of water, it should require 50 C.c. of the volumetric solution of hyposulphite of sodium to fully decolorize the liquid (corresponding to 100 per cent. of absolute Iodine).

Preparations: Liquor Iodi Compositus. Tinctura Iodi. Unguentum Iodi.

IPECACUANHA.

IPECAC.

The root of *Cephaëlis Ipecacuanha* A. Richard (Nat. Ord., *Rubiaceæ, Coffeæ*).

About four inches (10 centimeters) long, and one-sixth of an inch (4 millimeters) thick; mostly simple, contorted, dull gray-brown or blackish, finely wrinkled; closely and irregularly annulated, and often transversely fissured; bark thick, brittle, brownish, easily separated from the thin, whitish, tough, ligneous portion; odor slight, peculiar, nauseous; taste bitterish, acrid, nauseating.

Preparations: Extractum Ipecacuanhæ Fluidum. Pulvis Ipecacuanhæ et Opii. Trochisci Ipecacuanhæ. Trochisci Morphinæ et Ipecacuanhæ.

IRIS.

IRIS.

[BLUE FLAG.]

The rhizome and rootlets of *Iris versicolor* Linné (Nat. Ord., *Iridaceæ*).

Rhizome horizontal, consisting of joints, two to four inches (5 to 10 centimeters) long, cylindrical in the lower half, flattish near the upper extremity, and terminated by a circular scar, annulated from the leaf-sheaths, gray-brown; rootlets long, simple, crowded near the broad end; odor slight; taste acrid, nauseous.

Preparations: Extractum Iridis. Extractum Iridis Fluidum.

JALAPA.

JALAP.

The tuberous root of *Exogonium Purga* Bentham (Nat. Ord., *Convolvulaceæ*).

Napiform, pyriform or oblong, varying in size, the larger roots incised, more or less wrinkled, dark brown, with lighter colored spots, and short, transverse ridges; hard, compact, internally pale grayish-brown, with numerous, concentric circles composed of small resin-cells; fracture resinous, not fibrous; odor slight, but peculiar, smoky and sweetish; taste sweetish and acrid.

On exhausting 100 parts of Jalap by alcohol, concentrating the tincture, and pouring it into water, a precipitate of resin should be obtained, which, after washing with water, and drying, should weigh not less than 12 parts, and of which not over 10 per cent. should be soluble in ether.

Preparations: Abstractum Jalapæ. Pulvis Jalapæ Compositus. Resina Jalapæ.

JUGLANS.

JUGLANS.

[BUTTERNUT.]

The inner bark of the root of *Juglans cinerea* Linné (Nat. Ord., *Juglandaceæ*), collected in autumn.

In flat or curved pieces, from an eighth to a quarter of an inch (3 to 6 millimeters) thick; the outer surface nearly free from soft cork; deep brown; the inner surface smooth and striate; transverse fracture short, delicately checkered, whitish and brown; odor feeble; taste bitter and somewhat acrid.

Preparation: Extractum Juglandis.

JUNIPERUS.

JUNIPER.

The fruit of *Juniperus communis* Linné (Nat. Ord., *Coniferæ*).

Nearly globular, about one-third of an inch (8 millimeters) in diameter, dark purplish, with a bluish-gray bloom, a three-rayed furrow at the apex, internally pulpy, greenish-brown, containing three ovate, somewhat triangular, bony seeds, with several large oil-glands on the surface; odor aromatic; taste sweet, terebinthinate, bitterish and slightly acrid.

KAMALA.

KAMALA.

[ROTTLERA, *Pharm.*, 1870.]

The glands and hairs from the capsules of *Mallotus philippinensis* Mueller Arg. (Nat. Ord., *Euphorbiaceæ*).

A granular, mobile, brick-red powder, inodorous and nearly tasteless, imparting a deep red color to alkaline liquids, alcohol, ether, or chloroform. Under the microscope it is seen to consist of stellately arranged, colorless hairs, mixed with depressed-globular glands, containing numerous red, club-shaped vesicles.

When heated in a crucible to redness, it should leave not more than 8 per cent. of ash.

KINO.

KINO.

The inspissated juice of *Pterocarpus Marsupium* Roxburgh (Nat. Ord., *Leguminosæ, Papilionaceæ*).

Small, angular, dark brown-red, shining pieces, brittle, in thin layers ruby-red and transparent, inodorous, very astringent and sweetish, tinging the saliva deep red; soluble in alcohol, nearly insoluble in ether.

Preparation: Tinctura Kino.

KRAMERIA.

KRAMERIA.

[RHATANY.]

The root of *Krameria triandra* Ruiz et Pavon, and of *Krameria tomentosa* St. Hilaire (Nat. Ord., *Polygalaceæ, Kramerieæ*).

About one inch (25 millimeters) thick, knotty and several-headed above, branched below, the branches long; bark smooth or scaly, deep rust-brown, about one-twelfth of an inch (2 millimeters) thick, very astringent, inodorous; wood pale brownish, tough, with fine, medullary rays, nearly tasteless.

The root of *Krameria tomentosa* (Savanilla Rhatany) is less knotty and more slender, and has a dark purplish-brown bark, about one-eighth of an inch (3 millimeters) thick.

Preparations: Extractum Krameriæ. Extractum Krameriæ Fluidum. Tinctura Krameriæ.

LACTUCARIUM.

LACTUCARIUM.

The concrete milk-juice of *Lactuca virosa* Linné (Nat. Ord., *Compositæ*).

In sections of plano-convex, circular cakes, or in irregular, angular pieces, externally gray-brown or dull reddish-brown, internally whitish or yellowish, of a waxy lustre; odor heavy, somewhat narcotic; taste bitter.

It is partly soluble in alcohol and in ether, and, when triturated with water, it yields a turbid mixture.

Preparations: Extractum Lactucarii Fluidum.

LAPPA.

LAPPA.

[BURDOCK.]

The root of *Lappa officinalis* Allioni (Nat. Ord., *Compositæ*).

About twelve inches (30 centimeters) or more long, and about one inch (25 millimeters) thick; nearly simple, fusiform, fleshy, longitudinally wrinkled, crowned with a tuft of whitish, soft, hairy leaf-stalks; gray-brown, internally paler; bark rather thick, the inner part and the soft wood radially striate, the parenchyma often with cavities lined with snow-white remains of tissue; odor feeble and unpleasant; taste mucilaginous, sweetish and somewhat bitter.

LAVANDULA.

LAVENDER.

The flowers of *Lavandula vera* De Candolle (Nat. Ord., *Labiatæ*).

Calyx tubular, blue-gray, hairy, five-toothed, the upper tooth largest and roundish-rhomboid; corolla violet-blue, hairy and glandular on the outside, tubular and two-lipped, the upper lip two-lobed, the lower lip three-lobed; stamens four, short, on the corolla tube; odor fragrant; taste bitterish, aromatic, somewhat camphoraceous.

Preparation: Vinum Aromaticum.

LEPTANDRA.

LEPTANDRA.

[CULVER'S ROOT.]

The rhizome and rootlets of *Leptandra virginica* Nuttall (*Veronica virginica* Linné.—Nat. Ord., *Scrophulariaceæ*).

Horizontal, from four to six inches (10 to 15 centimeters) long, and about a quarter of an inch (6 millimeters) thick, somewhat flattened, bent and branched, deep blackish-brown, with cup-shaped scars on the upper side, hard, of a woody fracture, with a thin, blackish bark, a hard, yellowish wood and a large, purplish-brown, about six-rayed pith; rootlets thin, wrinkled, very fragile; inodorous; taste bitter and feebly acrid.

Preparations: Extractum Leptandræ. Extractum Leptandræ Fluidum.

LIMONIS CORTEX.

LEMON PEEL.

The rind of the recent fruit of *Citrus Limonum* Risso (Nat. Ord., *Aurantiaceæ*).

In narrow, thin bands, with very little of a spongy, white, inner layer adhering to them; outer surface deep lemon-yellow, and ruggedly glandular; odor fragrant; taste aromatic and bitterish.

Preparation: Spiritus Limonis.

LIMONIS SUCCUS.

LEMON JUICE.

The freshly expressed juice of the ripe fruit of *Citrus Limonum* Risso (Nat. Ord., *Aurantiaceæ*).

A slightly turbid, yellowish liquid, odorless or having an odor of lemon due to the accidental presence of the volatile oil of the rind, and an acid taste and reaction. Sp. gr. not less than 1.030. On evaporating a portion of the juice to dryness and igniting the residue, not more than 0.5 per cent. of ash should remain.

Fresh Lemon Juice contains about 7 per cent. of citric acid.

Preparations: Mistura Potassii Citratis. Syrupus Limonis.

LINIMENTUM AMMONIÆ.

AMMONIA LINIMENT.

Water of Ammonia, *thirty parts*	30
Cotton Seed Oil, *seventy parts*	70
To make *one hundred parts*	100

Mix them.

LINIMENTUM BELLADONNÆ.

BELLADONNA LINIMENT.

Fluid Extract of Belladonna, *ninety-five parts*	95
Camphor, *five parts*	5
To make *one hundred parts*	100

Dissolve the Camphor in the Fluid Extract.

LINIMENTUM CALCIS.

LIME LINIMENT.

Solution of Lime, *fifty parts*	50
Cotton Seed Oil, *fifty parts*	50
To make *one hundred parts*	100

Mix them.

LINIMENTUM CAMPHORÆ.

CAMPHOR LINIMENT

Camphor, *twenty parts*	20
Cotton Seed Oil, *eighty parts*	80
To make *one hundred parts*	100

Dissolve the Camphor in the Oil.

LINIMENTUM CANTHARIDIS.

CANTHARIDES LINIMENT.

Cantharides, in No. 60 powder, *fifteen parts*	15
Oil of Turpentine, *a sufficient quantity*,	
To make *one hundred parts*	100

Digest the Cantharides with *one hundred* (100) *parts* of Oil of Turpentine, in a closed vessel, by means of a water-bath, for three hours ; then strain and add enough Oil of Turpentine through the strainer to make the Liniment weigh *one hundred* (100) *parts*.

LINIMENTUM CHLOROFORMI.

CHLOROFORM LINIMENT.

Commercial Chloroform, *forty parts*	40
Soap Liniment, *sixty parts*	60
To make *one hundred parts*	100

Mix them.

LINIMENTUM PLUMBI SUBACETATIS.

LINIMENT OF SUBACETATE OF LEAD.

Solution of Subacetate of Lead, *forty parts*	40
Cotton Seed Oil, *sixty parts*	60
To make *one hundred parts*	100

Mix them.

LINIMENTUM SAPONIS.

SOAP LINIMENT.

Soap, in shavings, *ten parts*	10
Camphor, *five parts*	5
Oil of Rosemary, *one part*	1
Alcohol, *seventy parts*	70
Water, *a sufficient quantity,*	
To make *one hundred parts*	100

Digest the Soap in *fourteen* (14) *parts* of Water, until it is dissolved; dissolve the Camphor and Oil in the Alcohol; mix the solutions, and filter through paper, adding enough Water, through the filter, to make the Liniment weigh *one hundred* (100) *parts.*

LINIMENTUM SINAPIS COMPOSITUM.

COMPOUND LINIMENT OF MUSTARD.

Volatile Oil of Mustard, *three parts*	3
Extract of Mezereum, *two parts*	2
Camphor, *six parts*	6
Castor Oil, *fifteen parts*	15
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Dissolve the Extract of Mezereum and the Camphor in *seventy* (70) *parts* of Alcohol; then add the Oil of Mustard and the Castor Oil and, finally, enough Alcohol to make the product weigh *one hundred* (100) *parts*.

LINIMENTUM TEREBINTHINÆ.

TURPENTINE LINIMENT.

Resin Cerate, *sixty-five parts*	65
Oil of Turpentine, *thirty-five parts*	35
To make *one hundred parts*	100

Add the Oil to the Cerate previously melted, and mix them thoroughly.

LINUM.

FLAXSEED.

[LINSEED.]

The seed of *Linum usitatissimum* Linné (Nat. Ord., *Linaceæ*).

About one-sixth of an inch (4 millimeters) long, oblong-ovate, flattened, obliquely pointed at one end, brown, glossy, covered with a transparent, mucilaginous epithelium, which swells considerably in water; the embryo whitish, with two large, oily, plano-convex cotyledons, and a thin albumen; inodorous; taste mucilaginous, oily and bitter.

Ground Flaxseed, for medicinal purposes, should be recently prepared, free from unpleasant or rancid odor, and, when extracted with disulphide of carbon, should yield not less than 25 per cent. of fixed oil.

LIQUOR ACIDI ARSENIOSI.

SOLUTION OF ARSENIOUS ACID.

[LIQUOR ARSENICI CHLORIDI, *Pharm.*, 1870.]

Arsenious Acid, in small pieces, *one part*	1
Hydrochloric Acid, *two parts*	2
Distilled Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Boil the Arsenious Acid with the Hydrochloric Acid and *twenty-five* (25) *parts* of Distilled Water, until it is dissolved. Filter the liquid and pass enough Distilled Water through the filter to make the solution weigh *one hundred* (100) *parts*.

If 24.7 Gm. of Solution of Arsenious Acid be boiled for a few minutes with 2 Gm. of bicarbonate of sodium, the resulting liquid should not decolorize less than 48.5 C.c. of the volumetric solution of iodine (corresponding to 1 per cent. of arsenious acid of the required purity).

LIQUOR AMMONII ACETATIS.

SOLUTION OF ACETATE OF AMMONIUM.

[SPIRIT OF MINDERERUS.]

Diluted Acetic Acid, *one hundred parts*	100
Carbonate of Ammonium, *a sufficient quantity.*	

Add a sufficient quantity of Carbonate of Ammonium gradually to the Diluted Acetic Acid, until it is neutralized.

This preparation should be freshly made, when required for use.

Solution of Acetate of Ammonium may also be prepared in the following manner:

Carbonate of Ammonium, *ten parts*	10
Acetic Acid, *twenty-eight parts*	28
Distilled Water, *one hundred and forty-two parts*	142

Dissolve the Carbonate of Ammonium in *eighty* (80) *parts* of Distilled Water, and filter the solution. To the Acetic Acid add *sixty-two* (62) *parts* of Distilled Water. Keep the solutions in separate, well-stopped bottles, and, when Solution of Acetate of Ammonium is to be dispensed, weigh equal quantities of each solution and mix them.

A clear, colorless liquid, free from empyreuma, of a mildly saline taste, and a neutral or slightly acid reaction. Sp. gr. 1.022. It is wholly volatilized by heat. When heated with potassa, it evolves vapor of ammonia, and, when heated with sulphuric acid, it gives out vapor of acetic acid. It should not be darkened by hydrosulphuric acid or sulphide of ammonium (abs. of metals). It contains about 7.6 per cent. of acetate of ammonium.

Preparation: Mistura Ferri et Ammonii Acetatis.

LIQUOR ARSENII ET HYDRARGYRI IODIDI.

SOLUTION OF IODIDE OF ARSENIC AND MERCURY.

[LIQUOR ARSENICI ET HYDRARGYRI IODIDI, *Pharm.*, 1870. DONOVAN'S SOLUTION.]

Iodide of Arsenic, *one part*	1
Red Iodide of Mercury, *one part*	1
Distilled Water, *a sufficient quantity,*	
To make *one hundred parts*	100

Triturate the Iodides with *fifteen* (15) *parts* of Distilled Water, until they are dissolved. Filter the liquid and pass enough Distilled Water through the filter to make the solution weigh *one hundred* (100) *parts*.

LIQUOR CALCIS.

SOLUTION OF LIME.

[LIME WATER.]

An aqueous solution containing about 0.15 per cent. of Hydrate of Calcium [$Ca(HO)_2$; 74. — CaO,HO ; 37].

Lime, *one part*	1
Water,	
Distilled Water, each, *a sufficient quantity.*	

Slake the Lime by the gradual addition of *six* (6) *parts* of Water, then add *thirty* (30) *parts* of Water and stir occasionally during half an hour. Allow the mixture to settle, decant the liquid and throw it away. Then add to the residue *three hundred* (300) *parts* of Distilled Water, stir well, wait a short time for the coarser particles to subside, and pour the liquid, holding the undissolved Lime in suspension, into a glass-stoppered bottle. Pour off the clear liquid when wanted for use.

A clear, colorless liquid, without odor, having a saline and feebly caustic taste, and an alkaline reaction. Sp. gr. 1.0015 at 15° C. (59° F.). When heated to boiling, it becomes cloudy. Test-solution of oxalic acid added to it produces a white precipitate soluble in hydrochloric, but insoluble in acetic acid. The alkaline reaction of the liquid entirely disappears after it has been saturated with carbonic acid gas and the excess of the latter has been expelled by boiling (abs. of alkalies or their carbonates)

Preparation: Linimentum Calcis.

LIQUOR FERRI ACETATIS.

SOLUTION OF ACETATE OF IRON.

[SOLUTION OF FERRIC ACETATE.]

An aqueous solution of Ferric Acetate [$Fe_2(C_2H_3O_2)_6$; 465.8. — $Fe_2O_3.3C_4H_3O_3$; 232.9], containing 33 per cent. of the anhydrous salt.

Solution of Tersulphate of Iron, *one hundred parts*	100
Glacial Acetic Acid, *twenty-six parts*	26
Water of Ammonia, *eighty parts*	80
Water,	
Distilled Water, each, *a sufficient quantity*,	
To make *one hundred parts*	100

To the Water of Ammonia, diluted with *two hundred* (200) *parts* of cold Water add, constantly stirring, the solution of Tersulphate of Iron, previously diluted with *three hundred and fifty* (350) *parts* of cold Water.

Pour the whole on a wet muslin strainer, allow the precipitate to drain, then return it to the vessel and mix it intimately with *six hundred* (600) *parts* of cold Water; again drain it on the strainer, and repeat the operation, until the washings cause but a slight cloudiness with test-solution of chloride of barium. Then allow the excess of Water to drain off and press the precipitate, folded in the strainer, until its weight is reduced to *seventy* (70) *parts* or less. Add the precipitate to the Glacial Acetic Acid contained in a capacious porcelain capsule, and stir occasionally, until the oxide is entirely dissolved. Finally, add enough cold Distilled Water to make the solution weigh *one hundred* (100) *parts*, and filter, if necessary.

Solution of Acetate of Iron should be kept in well-stopped bottles, protected from light.

A dark red-brown, transparent liquid, of an acetous odor, a sweetish, faintly styptic taste, and a slightly acid reaction. Sp. gr. 1.160. The diluted solution affords a brown-red precipitate with water of ammonia, and a blue precipitate with test-solution of ferrocyanide of potassium. When heated with sulphuric acid, the solution evolves acetous vapors. If the iron be completely precipitated from the solution by an excess of ammonia, a portion of the filtrate should not yield a white or a dark-colored precipitate with hydrosulphuric acid (zinc, copper). Another portion of the filtrate should leave no fixed residue on evaporation and gentle ignition (fixed alkalies). A few drops added to freshly prepared test-solution of ferricyanide of potassium should impart to it a pure greenish-brown color without a trace of blue (abs. of ferrous salt).

10 Gm. of the Solution mixed with a few drops of nitric acid, carefully evaporated and ignited, should yield a residue weighing 1.13 Gm.

Preparation: Tinctura Ferri Acetatis.

LIQUOR FERRI CHLORIDI.

SOLUTION OF CHLORIDE OF IRON.

[SOLUTION OF FERRIC CHLORIDE.]

An aqueous solution (with some free Hydrochloric Acid) of Ferric Chloride [Fe_2Cl_6 ; 324.2. — Fe_2Cl_3; 162.1], containing 37.8 per cent. of the anhydrous salt.

Iron, in the form of fine wire and cut into small pieces, *fifteen parts*.	15
Hydrochloric Acid, *eighty-six parts*	86
Nitric Acid,	
Distilled Water, each, *a sufficient quantity*,	
To make *one hundred parts*....	100

Put the Iron Wire into a flask capable of holding double the volume of the intended product. Pour upon it *fifty-four* (54) *parts* of Hydrochloric Acid previously diluted with *twenty-five* (25) *parts* of Distilled Water, and let the mixture stand until effervescence ceases; then heat it to the boiling point, filter through paper, and, having rinsed the flask and Iron Wire with a little boiling Distilled Water, pass the washings through the filter. To the filtered liquid add *twenty-seven* (27) *parts* of Hydrochloric Acid, and pour the mixture, slowly and gradually, in a stream, into *eight* (8) *parts* of Nitric Acid contained in a capacious porcelain vessel. After effervescence ceases, apply heat, by means of a sand-bath, until the liquid is free from nitrous odor; then test a small portion with freshly prepared test-solution of ferricyanide of potassium. Should this reagent produce a blue color, add a little more Nitric Acid and evaporate off the excess. Finally, add the remaining *five* (5) *parts* of Hydrochloric Acid, and enough Distilled Water to make the solution weigh *one hundred* (100) *parts*.

A reddish-brown liquid, having a faint odor of hydrochloric acid, an acid, strongly styptic taste, and an acid reaction. Sp. gr. 1.405. The diluted solution affords a brown-red precipitate with water of ammonia; a blue one with test-solution of ferrocyanide of potassium, and a white one, insoluble in nitric acid, with test-solution of nitrate of silver. If the iron be completely precipitated from a portion of the solution by excess of water of ammonia, the filtrate should not yield either a white or a dark-colored precipitate with hydrosulphuric acid (zinc, copper). Another portion of the filtrate should leave no fixed residue on evaporation and gentle ignition (fixed alkalies). On adding a clear crystal of ferrous sulphate to a cooled mixture of equal volumes of concentrated sulphuric acid and a moderately dilute portion of the solution, the crystal should not be colored brown, nor should there be a brownish-black zone developed around it (abs. of nitric acid). A few drops added to freshly prepared test-solution of ferricyanide of potassium should impart to it a pure greenish-brown color without a trace of blue (abs. of ferrous salt). On diluting 3 parts of the solution with Distilled Water to 100 parts, and boiling in a test-tube, the liquid should remain clear (abs. of oxychloride).

10 Gm. of the Solution, when completely precipitated by excess of water of ammonia, yield a precipitate, which, when washed, dried, and ignited, should weigh 1.86 Gm.

Preparation: Tinctura Ferri Chloridi.

LIQUOR FERRI CITRATIS.

SOLUTION OF CITRATE OF IRON.

[SOLUTION OF FERRIC CITRATE.]

An aqueous solution of Ferric Citrate [$Fe_2(C_6H_5O_7)_2$; 489.8. — $Fe_2O_3, C_{12}H_5O_{11}$; 244.9], containing about 35.5 per cent. of the anhydrous salt.

Solution of Tersulphate of Iron, *one hundred and five parts*	105
Citric Acid, *thirty parts*	30
Water of Ammonia, *eighty-four parts*	84
Water, *a sufficient quantity,*	
To make *one hundred parts*	100

To the Water of Ammonia, previously diluted with *two hundred* (200) *parts* of cold Water, add, constantly stirring, the Solution of Tersulphate of Iron, previously diluted with *one thousand* (1000) *parts* of cold Water. Pour the whole on a wet muslin strainer, allow the precipitate to drain, then return it to the vessel and mix it intimately with *twelve hundred* (1200) *parts* of cold Water. Again drain it on a strainer, and repeat the operation, until the washings cause but a very slight cloudiness with test-solution of chloride of barium; then allow the excess of Water to drain off. Transfer the moist precipitate to a porcelain dish, add the Citric Acid, and heat the mixture, on a water-bath, to 60° C. (140° F.), stirring constantly, until the precipitate is dissolved. Lastly, filter the liquid and evaporate it, at the above-mentioned temperature, until it weighs *one hundred* (100) *parts.*

A dark brown liquid, odorless, having a slightly ferruginous taste, and an acid reaction. Sp. gr. 1.260. When allowed to evaporate spontaneously, or at a moderate heat, and spread on plates of glass, it forms transparent, garnet-red scales, which are easily detached from the glass. 100 parts of the Solution, thus treated, yield 43 to 44 parts of scales, which, when completely incinerated, leave about 11 parts of residue. The Solution is not precipitated, but only rendered darker, by water of ammonia. If heated with solution of potassa, it affords a brown-red precipitate without evolving any vapor of ammonia. If a portion of the Solution be deprived of its iron by boiling with an excess of solution of potassa, the concentrated and cooled filtrate precipitated by test-solution of chloride of calcium, and the new filtrate heated to boiling, a white, granular precipitate will be produced. On adding test-solution of ferrocyanide of potassium to the diluted Solution, a bluish-green color or precipitate is produced, which is increased and rendered dark-blue by the subsequent addition of hydrochloric acid.

Preparations: Ferri Citras. Ferri et Ammonii Citras.

LIQUOR FERRI ET QUININÆ CITRATIS.

SOLUTION OF CITRATE OF IRON AND QUININE.

Citrate of Iron and Ammonium, *sixty-five parts*	65
Quinine, dried at 100° C. (212° F.), until it ceases to lose weight, *twelve parts*	12
Citric Acid, *twenty-eight parts*	28
Alcohol, *thirty parts*	30
Distilled Water, *a sufficient quantity,*	
To make *two hundred parts*	200

Dissolve the Citrate of Iron and Ammonium in *two hundred* (200) *parts* of Distilled Water, contained in a tared porcelain capsule, heat the solution to 60° C. (140° F.), on a water-bath, add the Citric Acid, and, when it is dissolved, add the Quinine, stirring the mixture until a perfect solution has been obtained. Evaporate this to *one hundred and sixty* (160) *parts*, allow it to cool, add the Alcohol, and finally enough Distilled Water to make the solution weigh *two hundred* (200) *parts.*

A dark greenish-yellow to yellowish-brown liquid, transparent in thin layers, odorless, having a bitter and mildly ferruginous taste, and a slightly acid reaction. On supersaturating the diluted Solution with a slight excess of ammonia, the color of the liquid is deepened and a white, curdy precipitate is thrown down, which is soluble in ether and answers to the reaction of quinine (see *Quinina*). A small portion of the filtrate, when mixed with test-solution of ferrocyanide of potassium, does not produce a blue color or precipitate, unless it is acidulated with hydrochloric acid. If another portion of the filtrate be deprived of its iron by boiling with an excess of potassa, the concentrated and cooled filtrate precipitated by test-solution of chloride of calcium, and the new filtrate heated to boiling, a white granular precipitate is produced. On heating the Solution with potassa, vapor of ammonia is evolved.

The Solution contains 6 per cent. of quinine. It may be assayed as follows: Dilute 8 Gm. of the Solution with water to 30 C.c., introduce it, with any rinsings, into a glass-separator, add an aqueous solution of 0.5 Gm. of tartaric acid, and then solution of soda in decided excess. Extract the alkaloid by agitating the mixture with four successive portions of chloroform, each of 15 C.c. Separate the chloroformic layers, mix them, evaporate them in a weighed capsule, on a water-bath, and dry the residue at a temperature of 100° C. (212° F.). It should weigh 0.48 Gm.

Preparation : Vinum Ferri Amarum.

LIQUOR FERRI NITRATIS.

SOLUTION OF NITRATE OF IRON.

[SOLUTION OF FERRIC NITRATE.]

An aqueous solution of Ferric Nitrate [$Fe_2(NO_3)_6$; 483.8. — $Fe_2O_3.3NO_5$; 241.9], containing about 6 per cent. of the anhydrous salt.

Solution of Tersulphate of Iron, *eighteen parts*	18
Water of Ammonia, *fifteen parts*	15
Nitric Acid, *seven parts*	7
Distilled Water,	
Water, each, *a sufficient quantity,*	
To make *one hundred parts*	100

To the Water of Ammonia, previously diluted with *forty* (40) *parts* of cold Water, add, constantly stirring, the Solution of Tersulphate of Iron, previously diluted with *one hundred* (100) *parts* of cold Water. Pour the whole on a wet muslin strainer, allow the precipitate to drain, then return it to the vessel and mix it intimately with *one hundred* (100) *parts* of cold Water. Again drain it on a strainer and repeat the operation, until the washings cause but a very slight cloudiness with test-solution of chloride of barium. Then allow the excess of Water to drain off, transfer the precipitate to a capacious porcelain dish and add the Nitric Acid, stirring till a clear solution is obtained. Finally, add enough Distilled Water to make the solution weigh *one hundred* (100) *parts.*

A transparent, amber-colored or reddish liquid, without odor, having an acid, strongly styptic taste, and an acid reaction. Sp. gr. 1.050. The Solution affords a brown-red precipitate with water of ammonia, and a blue precipitate with test-solution of ferrocyanide of potassium. If a clear crystal of ferrous sulphate be added to a cooled mixture of equal volumes of concentrated sulphuric acid and of the Solution, the crystal rapidly becomes brown and surrounded by a brownish-black zone.

10 Gm. of the Solution, when precipitated by water of ammonia in excess, yield a precipitate, which, when washed, dried, and ignited, should weigh 0.2 Gm.

LIQUOR FERRI SUBSULPHATIS.

SOLUTION OF SUBSULPHATE OF IRON.

[SOLUTION OF BASIC FERRIC SULPHATE. MONSEL'S SOLUTION.]

An aqueous solution of Basic Ferric Sulphate [$Fe_4O(SO_4)_5$; 719.6. — $2Fe_2O_3.5SO_3$; 359.8], containing 43.7 per cent. of the salt.

Sulphate of Iron, *seventy-seven parts*	77
Sulphuric Acid, *seven parts*	7
Nitric Acid,	
Distilled Water, each, *a sufficient quantity,*	
To make *one hundred and fourteen parts*	**114**

Mix the Sulphuric Acid with *eleven* (11) *parts* of Nitric Acid and *fifty* (50) *parts* of Distilled Water in a capacious porcelain capsule, and, having heated the mixture to the boiling point, add the Sulphate of Iron (one-fourth of it at a time), stirring after each addition until effervescence ceases. Should the addition of a few drops of Nitric Acid cause a further evolution of red fumes, cautiously add Nitric Acid until red fumes cease to be evolved. Then keep the solution in brisk ebullition until nitrous vapors are no longer perceptible and the liquid assumes a deep ruby-red tint. Lastly, add enough Distilled Water to make the solution weigh *one hundred and fourteen* (114) *parts.*

Solution of Subsulphate of Iron is to be dispensed when Solution of Persulphate of Iron is prescribed by the physician.

A dark reddish-brown, almost syrupy liquid, odorless or nearly so, having an extremely astringent taste, free from causticity, and an acid reaction. Sp. gr. 1.555. It mixes with water and alcohol in all proportions, without decomposition. The diluted Solution affords a brown-red precipitate with water of ammonia, a blue one with test-solution of ferrocyanide of potassium, and a white one, insoluble in hydrochloric acid, with test-solution of chloride of barium. On slowly mixing 2 volumes of the Solution with 1 volume of concentrated sulphuric acid, in a beaker, the mixture separates a solid, white mass on standing (difference from **tersulphate**).

On adding a clear crystal of ferrous sulphate to a cooled mixture of equal volumes of concentrated sulphuric acid and a diluted portion of the Solution, the crystal should not become brown, nor should there be a brownish-black zone developed around it (abs. of nitric acid). A few drops added to freshly prepared test-solution of ferricyanide of potassium should impart to it a pure, greenish-brown color, **without a trace of blue (abs. of ferrous salt).**

10 Gm. of the Solution, when completely precipitated by excess of water of ammonia, yield a precipitate, which, when washed, dried, and ignited, should weigh 1.938 Gm.

LIQUOR FERRI TERSULPHATIS.

SOLUTION OF TERSULPHATE OF IRON.

[SOLUTION OF NORMAL FERRIC SULPHATE.]

An aqueous solution of Normal Ferric Sulphate [$Fe_2(SO_4)_3$; 399.8. — $Fe_2O_3.3SO_3$; 199.9], containing 28.7 per cent. of the salt.

Sulphate of Iron, *eighty parts*	80
Sulphuric Acid, *fifteen parts*	15
Nitric Acid,	
Distilled Water, each, *a sufficient quantity,*	
To make *two hundred parts*	200

Mix the Sulphuric Acid with *eleven* (11) *parts* of Nitric Acid and with *fifty* (50) *parts* of Distilled Water in a capacious porcelain capsule, and, having heated the mixture to the boiling point, add the Sulphate of Iron (one-fourth of it at a time), stirring, after each addition, until effervescence ceases. Should the addition of a few drops of Nitric Acid cause a further evolution of red fumes, cautiously add Nitric Acid until red fumes cease to be evolved. Then continue the heat until the solution acquires a reddish-brown color and is free from nitrous odor. Lastly, add enough Distilled Water to make the whole weigh *two hundred* (200) *parts*.

A dark reddish-brown liquid, almost odorless, having an acid, strongly styptic taste, and an acid reaction. Sp. gr. 1.320. It is miscible with water and alcohol in all proportions, without decomposition. The diluted Solution affords a brown-red precipitate with water of ammonia, a blue one with test-solution of ferrocyanide of potassium, and a white one, insoluble in hydrochloric acid, with test-solution of chloride of barium. On slowly mixing 2 volumes of the Solution with 1 volume of concentrated sulphuric acid, in a beaker, the mixture does not separate a solid, **white mass on standing (difference from subsulphate).**

On adding a clear crystal of ferrous sulphate to a cooled mixture of equal volumes of concentrated sulphuric acid and a moderately diluted portion of the Solution, the crystal should not become brown, nor should there be a brownish-black zone developed around it (abs. of nitric acid). A few drops added to freshly prepared test-solution of ferricyanide of potassium should impart to it a pure, greenish-**brown color without a trace of blue (abs. of ferrous salt).**

10 Gm. of the Solution, when completely precipitated by excess of water of ammonia, yield a precipitate, which, when washed, dried, and ignited, should weigh 1.147 Gm

LIQUOR GUTTA-PERCHÆ.

SOLUTION OF GUTTA-PERCHA.

Gutta-Percha, in thin slices, *nine parts*	9
Commercial Chloroform, *ninety-one parts*	91
Carbonate of Lead, in fine powder, *ten parts*	10
To make *one hundred parts*	100

Add the Gutta-Percha to *seventy* (70) *parts* of the Chloroform, contained in a bottle, cork the latter, and shake it occasionally until the Gutta-Percha is dissolved. Then add the Carbonate of Lead, previously mixed with the remainder of the Chloroform, and, having several times shaken the whole together, at intervals of half an hour, set the mixture aside until the insoluble matters have subsided and the solution has become perfectly clear. Lastly, decant the liquid and preserve it in small, cork-stoppered vials.

LIQUOR HYDRARGYRI NITRATIS.

SOLUTION OF NITRATE OF MERCURY.

[SOLUTION OF MERCURIC NITRATE.]

A liquid containing in solution about 50 per cent. of Mercuric Nitrate [$Hg(NO_3)_2$; 327.7. — HgO,NO_5 ; 161.85], with some free Nitric Acid.

Red Oxide of Mercury, *forty parts*	40
Nitric Acid, *forty-five parts*	45
Distilled Water, *fifteen parts*	15
To make *one hundred parts*	100

Mix the Nitric Acid with the Distilled Water and dissolve the Red Oxide of Mercury in the mixture.

Keep the Solution in glass-stoppered bottles.

A clear, nearly colorless, heavy liquid, having a faint odor of nitric acid, and a strongly acid reaction. Sp. gr. 2.100. A few drops evaporated on platinum foil leave a white residue, which, on heating, becomes yellow, red, and brown, and is finally entirely volatilized. On a bright surface of copper, the solution deposits a coating of mercury. The diluted solution affords, with solution of potassa, a yellow precipitate, and with iodide of potassium, a bright red one, soluble in excess of the iodide. A crystal of ferrous sulphate, dropped into the solution, rapidly acquires a brown color and becomes surrounded by a brownish-black zone.

No precipitation or cloudiness should occur in the Solution on the addition of distilled water or of diluted hydrochloric acid (abs. of mercurous salt).

LIQUOR IODI COMPOSITUS.

COMPOUND SOLUTION OF IODINE.

[LIQUOR IODINII COMPOSITUS, *Pharm.*, 1870. LUGOL'S SOLUTION.]

Iodine, *five parts*	5
Iodide of Potassium, *ten parts*	10
Distilled Water, *eighty-five parts*	85
To make *one hundred parts*	100

Dissolve the Iodine and Iodide of Potassium in the Distilled Water. Keep the Solution in well-stopped bottles.

12.66 Gm. of the Solution, mixed with a little gelatinized starch, should require for complete decoloration, 50 C.c. of the volumetric solution of hyposulphite of sodium.

LIQUOR MAGNESII CITRATIS.

SOLUTION OF CITRATE OF MAGNESIUM.

	Grains.	Grammes.
Carbonate of Magnesium, *two hundred grains*	200	13.00
Citric Acid, *four hundred grains*	400	26.00
Syrup of Citric Acid, *twelve hundred grains*	1200	80.00
Bicarbonate of Potassium, in crystals, *thirty grains*	30	2.00
Water, *a sufficient quantity.*		

Dissolve the Citric Acid in *two thousand* (2000) *grains*, or about *one hundred and twenty* (120) *grammes* of Water, and, having added the Carbonate of Magnesium, stir until it is dissolved. Filter the solution into a strong bottle of the capacity of *twelve* (12) *fluid ounces*, or about *three hundred and sixty* (360) *cubic centimeters*, containing the Syrup of Citric Acid. Then add enough Water, previously boiled and filtered, to nearly fill the bottle, drop in the Bicarbonate of Potassium, and immediately close the bottle with a cork, which must be secured with twine. Lastly, shake the mixture occasionally until the Bicarbonate of Potassium is dissolved.

LIQUOR PEPSINI.

SOLUTION OF PEPSIN.

[LIQUID PEPSIN.]

Saccharated Pepsin, *forty parts*	40
Hydrochloric Acid, *twelve parts*	12
Glycerin, *four hundred parts*	400
Water, *five hundred and forty-eight parts*	548
To make *one thousand parts*	1000

Dissolve the Saccharated Pepsin in the Water, previously mixed with the Hydrochloric Acid, add the Glycerin, let the mixture stand twenty-four hours, and filter.

Solution of Pepsin should be perfectly clear, of a light yellowish color, and an agreeable, acidulous taste. It should not become mouldy, nor acquire a disagreeable, fetid odor, when kept for some time.

LIQUOR PLUMBI SUBACETATIS.

SOLUTION OF SUBACETATE OF LEAD.

An aqueous liquid containing in solution about 25 per cent. of Subacetate of Lead.

Acetate of Lead, *one hundred and seventy parts*	170
Oxide of Lead, *one hundred and twenty parts*	120
Distilled Water, *a sufficient quantity,*	
To make *one thousand parts*	1000

Dissolve the Acetate of Lead in *eight hundred* (800) *parts* of boiling Distilled Water, in a glass or porcelain vessel. Then add the Oxide of Lead and boil for half an hour, occasionally adding enough hot Distilled Water to make up the loss by evaporation. Remove the heat, allow the liquid to cool, and add enough Distilled Water, previously boiled and cooled, to make the product weigh *one thousand* (1000) *parts*. Finally, filter the liquid in a well-covered funnel.

Solution of Subacetate of Lead should be kept in well-stopped bottles.

A clear, colorless liquid, of a sweetish, astringent taste, and an alkaline reaction. Sp. gr. 1.228. When added to a solution of acacia, it produces a dense white precipitate. In other respects it possesses the reactions of an aqueous solution of acetate of lead (see *Plumbi Acetas*).

13.7 Gm. of the Solution should require for complete precipitation 25 C.c. of the volumetric solution of oxalic acid.

Preparations: Ceratum Plumbi Subacetatis. Linimentum Plumbi Subacetatis. Liquor Plumbi Subacetatis Dilutus.

LIQUOR PLUMBI SUBACETATIS DILUTUS.

DILUTED SOLUTION OF SUBACETATE OF LEAD.

[LEAD WATER.]

Solution of Subacetate of Lead, *three parts*	3
Distilled Water, *ninety-seven parts*	97
To make *one hundred parts*	100

Mix the Solution of Subacetate of Lead with the Distilled Water, previously boiled and cooled.

Keep the liquid in well-stopped bottles.

LIQUOR POTASSÆ.

SOLUTION OF POTASSA.

An aqueous solution of Hydrate of Potassium [KHO ; 56. — KO,HO ; 56], containing about 5 per cent. of the hydrate.

Bicarbonate of Potassium, *ninety parts*	90
Lime, *forty parts*	40
Distilled Water, *a sufficient quantity.*	

Dissolve the Bicarbonate of Potassium in *four hundred* (400) *parts* of Distilled Water, heat the solution until effervescence ceases, and then raise it to boiling. Slake the Lime, make it into a smooth mixture with *four hundred* (400) *parts* of Distilled Water, and heat it to boiling. Then gradually add the first liquid to the second and continue the boiling for ten minutes. Remove the heat, cover the vessel tightly, and, when the contents are cold, add enough Distilled Water to make the whole mixture weigh *one thousand* (1000) *parts.* Lastly, strain it through linen, set the liquid aside, in a well-stopped bottle, until it is clear, and remove the clear solution by means of a siphon.

Solution of Potassa may also be prepared in the following manner :

Potassa, *fifty-six parts*	56
Distilled Water, *nine hundred and forty-four parts*	944
To make *one thousand parts*	1000

Dissolve the Potassa in the Distilled Water.

The Potassa used in this process should be of the full strength directed by the Pharmacopœia (90 per cent.). Potassa of any other strength, however, may be used, if a proportionately larger or smaller quantity be taken ; the proper amount for the above formula being ascertained, by dividing 5000 by the percentage of absolute Potassa (hydrate of potassium) contained therein.

Solution of Potassa should be kept in well-stopped bottles.

A clear, colorless liquid, odorless, having a very acrid and caustic taste, and a strongly alkaline reaction. Sp. gr. about 1.036. When dropped into a concentrated solution of tartaric acid, a white, crystalline precipitate, soluble in an excess of potassa, is produced (difference from solution of soda). A drop taken up by a platinum loop and held in a non-luminous flame, imparts to it a violet tint. When dropped into an acid, it should produce no effervescence, or, at most, only an escape of isolated bubbles (limit of carbonate). When neutralized by nitric acid, the Solution should not yield more than a faint cloudiness with test-solution of carbonate of sodium (limit of alkaline earths), chloride of barium (sulphate), or nitrate of silver with a little nitric acid (chloride). The neutralized Solution, when evaporated to dryness, should yield a residue which should dissolve in water without leaving more than a small quantity of insoluble matter.

To neutralize 28 Gm. of Solution of Potassa should require 25 C.c. of the volumetric solution of oxalic acid.

LIQUOR POTASSII ARSENITIS.

SOLUTION OF ARSENITE OF POTASSIUM.

[FOWLER'S SOLUTION.]

Arsenious Acid, in small pieces, *one part*	1
Bicarbonate of Potassium, *one part*	1
Compound Tincture of Lavender, *three parts*	3
Distilled Water, *a sufficient quantity,*	
To make *one hundred parts*	100

Boil the Arsenious Acid and Bicarbonate of Potassium in a glass vessel with *ten* (10) *parts* of Distilled Water, until the Acid is completely dissolved. Then add the Compound Tincture of Lavender, and enough Distilled Water to make the product weigh *one hundred* (100) *parts*. Lastly, set the mixture aside for eight days and then filter through paper.

If 24.7 Gm. of the Solution are boiled with 2 Gm. of bicarbonate of sodium, the liquid, when cold, diluted with 100 C.c. of water, and some gelatinized starch added, should require from 48.5 to 50 C.c. of the volumetric solution of iodine, before the blue color ceases to disappear on stirring (corresponding to 1 per cent. of arsenious acid of the required purity)

LIQUOR POTASSII CITRATIS.

SOLUTION OF CITRATE OF POTASSIUM.

Citric Acid, *six parts*	6
Bicarbonate of Potassium, *eight parts*	8
Water, *a sufficient quantity.*	

Dissolve the Citric Acid and the Bicarbonate of Potassium, each, in *forty* (40) *parts* of Water. Filter the solutions separately, and wash the filters with enough Water to obtain, in each case, *fifty* (50) *parts* of solution. Finally, mix the two solutions, and, when effervescence has ceased, transfer the liquid to a bottle.

This preparation should be freshly made. when wanted for use.

A clear, colorless liquid, odorless, having a mildly saline taste, and a slightly acid reaction. Sp. gr. 1.059. The Solution contains about 9 per cent. of citrate of potassium, with some free citric acid and carbonic acid gas. It responds to the reactions and tests of Citrate of Potassium (see *Potassii Citras*).

LIQUOR SODÆ.

SOLUTION OF SODA

An aqueous solution of Hydrate of Sodium [$NaHO$; 40. — NaO,HO; 40], containing about 5 per cent. of the hydrate.

Carbonate of Sodium, *one hundred and eighty parts*	180
Lime, *sixty parts*	60
Distilled Water, *a sufficient quantity.*	

Dissolve the Carbonate of Sodium in *four hundred* (400) *parts* of boiling Distilled Water. Slake the Lime and make it into a smooth mixture with *four hundred* (400) *parts* of Distilled Water, and heat it to boiling. Then gradually add the first liquid to the second, and continue the boiling for ten minutes. Remove the heat, cover the vessel tightly, and, when the contents are cold, add enough Distilled Water to make the whole mixture weigh *one thousand* (1000) *parts*. Lastly, strain it through linen, set the liquid aside, in a well-stopped bottle, until it is clear, and remove the clear solution by means of a siphon.

Solution of Soda may also be prepared in the following manner:

Soda, *fifty-six parts*	56
Distilled Water, *nine hundred and forty-four parts*	944
To make *one thousand parts*	1000

Dissolve the Soda in the Distilled Water.

The Soda used in this process should be of the full strength directed by the Pharmacopœia (90 per cent.). Soda of any other strength, however, may be used, if a proportionately larger or smaller quantity be taken; the proper amount for the above formula being ascertained by dividing 5000 by the percentage of absolute Soda (hydrate of sodium) contained therein.

Solution of Soda should be kept in well-stopped bottles.

A clear, colorless liquid, odorless, having a very acrid and caustic taste, and a strongly alkaline reaction. Sp. gr. about 1.059. When dropped into a concentrated solution of tartaric acid, no precipitate is produced (difference from solution of potassa). A drop taken up by a platinum loop and held in a non-luminous flame, imparts to it an intense yellow color. When dropped into an acid, it should produce no effervescence, or, at most, only a slight escape of isolated bubbles (limit of carbonate). When neutralized by nitric acid, the Solution should not yield more than a faint cloudiness with test-solution of carbonate of sodium (limit of alkaline earths), chloride of barium (sulphate), or nitrate of silver with a little nitric acid (chloride). The neutralized Solution, when evaporated to dryness, should yield a residue which is dissolved by water without leaving more than a small quantity of insoluble matter.

To neutralize 20 Gm. of Solution of Soda should require 25 C.c. of the volumetric solution of oxalic acid.

LIQUOR SODÆ CHLORATÆ.

SOLUTION OF CHLORINATED SODA.

[Liquor Sodæ Chlorinatæ, *Pharm.*, 1870. Labarraque's Solution.]

Carbonate of Sodium, *one hundred parts*	100
Chlorinated Lime, *eighty parts*	80
Water, *a sufficient quantity,*	
To make *one thousand parts*	1000

Mix the Chlorinated Lime intimately with *four hundred* (400) *parts* of Water in a tared vessel provided with a tightly fitting cover. Dissolve the Carbonate of Sodium in *four hundred* (400) *parts* of boiling Water, and immediately pour the latter solution into the former. Cover the vessel tightly, and, when the contents are cold, add enough Water to make them weigh *one thousand* (1000) *parts*. Lastly, strain the mixture through muslin, allow the precipitate to subside, and remove the clear solution by means of a siphon.

Keep the product in well-stopped bottles.

A clear, pale greenish liquid, of a faint odor of chlorine, a disagreeable and alkaline taste, and an alkaline reaction. Sp. gr. 1.044. Addition of hydrochloric acid causes an effervescence of chlorine and carbonic acid gas. It rapidly decolorizes indigo, and produces a copious, light brown precipitate with solution of ferrous sulphate.

8.88 Gm. of the Solution, when mixed with a solution of 2.6 Gm. of iodide of potassium in 200 C.c. of water, and afterward with 18 Gm. of hydrochloric acid and a little gelatinized starch, should require, for complete decoloration, not less than 50 C.c. of the volumetric solution of hyposulphite of sodium (corresponding to at least 2 per cent. of available chlorine).

LIQUOR SODII ARSENIATIS.

SOLUTION OF ARSENIATE OF SODIUM.

Arseniate of Sodium, deprived of its water of crystallization by a heat not exceeding 149° C. (300° F.), *one part*	1
Distilled Water, *ninety-nine parts*	99
To make *one hundred parts*	100

Dissolve the Arseniate of Sodium in the Distilled Water.

The solution responds to the reactions and tests of Arseniate of Sodium (see *Sodii Arsenias*).

LIQUOR SODII SILICATIS.

SOLUTION OF SILICATE OF SODIUM.

Solution of Silicate of Sodium should be kept in well-closed vessels.

A semi-transparent, almost colorless, or yellowish, or pale greenish-yellow, viscid liquid, odorless, having a sharp, saline and alkaline taste, and an alkaline reaction. The sp. gr. of the commercial solution is between 1.300 and 1.400.

A drop of the solution, when held in a non-luminous flame, imparts to it an intense, yellow color. If a portion of the solution, considerably diluted with water, be supersaturated with nitric acid, a gelatinous or pulverulent, white precipitate of silicic hydrate will be produced. A small quantity should not produce any caustic effect when applied to the skin (abs. of an excessive amount of alkali).

LIQUOR ZINCI CHLORIDI.

SOLUTION OF CHLORIDE OF ZINC.

An aqueous solution of Chloride of Zinc [$ZnCl_2$; 135.7. — $ZnCl$; 67.85], containing about 50 per cent. of the salt.

Zinc, granulated, *two hundred and forty parts*	240
Nitric Acid, *twelve parts*	12
Precipitated Carbonate of Zinc, *twelve parts*	12
Hydrochloric Acid,	
Distilled Water, each, *a sufficient quantity*,	
To make *one thousand parts*	1000

To the Zinc, contained in a glass or porcelain vessel, add, gradually, enough Hydrochloric Acid to dissolve it; then strain the solution, add the Nitric Acid, evaporate to dryness, and bring the dry mass to fusion. Let it cool, dissolve it in *one hundred and fifty* (150) *parts* of Distilled Water, add the Precipitated Carbonate of Zinc, and agitate the mixture occasionally during twenty four hours. Finally, filter through white filtering paper free from iron, and pass enough Distilled Water through the filter to make the solution weigh *one thousand* (1000) *parts*.

A clear, colorless liquid, odorless, having a very astringent, sweetish taste, and an acid reaction. Sp. gr. 1.555. It responds to the reactions and tests of an aqueous solution of Chloride of Zinc (see *Zinci Chloridum*).

LITHII BENZOAS.

BENZOATE OF LITHIUM.

$LiC_7H_5O_2$; 128. — $LiO,C_{14}H_5O_3$; 128.

A white powder, or small, shining scales, permanent in the air, odorless, or having a faint, benzoin-like odor; of a cooling and sweetish taste, and a faintly acid reaction. Soluble in 4 parts of water and in 12 parts of alcohol at 15° C. (59° F.); in 2.5 parts of boiling water, and in 10 parts of boiling alcohol When heated, the salt fuses; at a higher temperature it chars, emits inflammable vapors having a benzoin-like odor, and finally leaves a black residue of an alkaline reaction, and imparting a crimson color to a non-luminous flame. On mixing the aqueous solution with a dilute solution of ferric sulphate, a flesh-colored precipitate is produced. If the benzoic acid be separated from the salt by precipitation with diluted nitric acid, and thoroughly washed, it should respond to the tests of purity mentioned under *Acidum Benzoicum*.

On dissolving the residue, left on ignition, in diluted hydrochloric acid, and evaporating the filtered solution to dryness, 1 part of the residue should be completely soluble in 3 parts of absolute alcohol, which, when ignited, should burn with a crimson flame, and the addition of an equal volume of stronger ether to the alcoholic solution should produce no precipitate (salts of alkalies). On dissolving another portion of the residue in a small quantity of water, the solution should produce no precipitate with test-solution of oxalate of ammonium (salts of alkaline earths). The aqueous solution should remain unaffected by hydrosulphuric acid or sulphide of ammonium (abs. of metals).

LITHII BROMIDUM.

BROMIDE OF LITHIUM.

$LiBr$; 86.8. — $LiBr$; 86.8.

Bromide of Lithium should be kept in well-stopped bottles.

A white, granular salt, very deliquescent, odorless, having a very sharp, somewhat bitter taste, and a neutral reaction. Very soluble in water and in alcohol. At a low red heat the salt fuses, and at a higher heat it is slowly volatilized. A fragment of the salt imparts a crimson color to a non-luminous flame. If disulphide of carbon be poured into a solution of the salt, then chlorine water added drop by drop, and the whole agitated, the disulphide will acquire a yellow or yellowish-brown color without a violet tint.

One part of the salt should be completely soluble in 3 parts of absolute alcohol, and the addition of an equal volume of stronger ether to the alcoholic solution should produce no precipitate (salts of alkalies). On dissolving a portion of the salt in a small quantity of water, the solution should produce no precipitate with test-solution of oxalate of ammonium (salts of alkaline earths). The aqueous solution should remain unaffected by hydrosulphuric acid or sulphide of ammonium (abs. of metals).

LITHII CARBONAS.

CARBONATE OF LITHIUM.

Li_2CO_3; 74. — LiO,CO_2; 37.

A light, white powder, permanent in the air, odorless, having an alkaline taste, and an alkaline reaction. Soluble in 130 parts of water at 15° C. (59° F.), and in about the same proportion of boiling water; insoluble in alcohol. On heating a small quantity of the salt on a platinum loop in a non-luminous flame, it fuses to a clear, transparent bead, imparting a crimson color to the flame. The salt is soluble in acids with copious effervescence.

If a solution of the salt in diluted hydrochloric acid be evaporated to dryness, the residue should respond to the tests of purity mentioned, for the corresponding residue, under *Lithii Benzoas*.

LITHII CITRAS.

CITRATE OF LITHIUM.

$Li_3C_6H_5O_7$; 210. — $3LiO,C_{12}H_5O_{11}$; 210.

Citrate of Lithium should be kept in well-stopped bottles.

A white powder, deliquescent on exposure to air, odorless, having a slightly cooling, faintly alkaline taste, and a neutral reaction. Soluble in 5.5 parts of water at 15° C. (59° F.), and in 2.5 parts of boiling water; only slightly soluble in alcohol. When exposed to a red heat, the salt chars, emits inflammable vapors, and finally leaves a black residue having an alkaline reaction, which imparts a crimson color to a non-luminous flame. The aqueous solution of the salt, mixed with test-solution of chloride of calcium, deposits a white precipitate on boiling.

On dissolving the residue, left on ignition, in diluted hydrochloric acid, and evaporating the filtered solution to dryness, the residue should respond to the tests of purity mentioned, for the corresponding residue, under *Lithii Benzoas*.

LITHII SALICYLAS.

SALICYLATE OF LITHIUM.

$2LiC_7H_5O_3.H_2O$; 306. — $LiO,HO,C_{14}H_4O_4.HO$; 153.

Salicylate of Lithium should be kept in well-stopped bottles.

A white powder, deliquescent on exposure to air, odorless or nearly so, having a sweetish taste, and a faintly acid reaction. Very soluble in water and in alcohol. When strongly heated, the salt chars, emits inflammable vapors, and finally leaves a black residue having an alkaline reaction, and imparting a crimson color to a non-luminous flame. On supersaturating the dilute aqueous solution with hydrochloric acid, a bulky, white precipitate is obtained, which is soluble in boiling water, from which it crystallizes on cooling; also soluble in ether; and producing an intense, violet color with ferric salts.

The aqueous solution should be colorless and should not effervesce on the addition of an acid (abs. of carbonate). When agitated with 15 parts of concentrated sulphuric acid, the salt should not impart any color to the acid within fifteen minutes (abs. of foreign organic matters).

On dissolving the residue, left on ignition, in diluted hydrochloric acid, and evaporating the filtered solution to dryness, the residue should respond to the tests of purity mentioned, for the corresponding residue, under *Lithii Benzoas*.

LOBELIA.

LOBELIA.

The leaves and tops of *Lobelia inflata* Linné (Nat. Ord., *Lobeliaceæ*), collected after a portion of the capsules have become inflated.

Leaves alternate, petiolate, the upper ones sessile, ovate or oblong, about two inches (5 centimeters) long, irregularly toothed, pubescent, pale green; branches hairy, terminating in long racemes of small, pale blue flowers, having a superior, five-toothed calyx, which is inflated in fruit, a two-lipped corolla, and five united stamens; odor slight, irritating; taste mild, afterward burning and acrid.

Preparations: Acetum Lobeliæ. Extractum Lobeliæ Fluidum. Tinctura Lobeliæ.

LUPULINUM.

LUPULIN.

[LUPULINA, *Pharm.*, 1870.]

The glandular powder separated from the strobiles of *Humulus Lupulus* Linné (Nat. Ord., *Urticaceæ, Cannabineæ*).

Bright brownish-yellow, becoming yellowish-brown, resinous, consisting of minute granules which, as seen under the microscope, are subglobular, or rather hood-shaped, and reticulate; aromatic and bitter.

When agitated with water and allowed to stand, no considerable sediment (sand, etc.) should be deposited. When ignited, Lupulin should not leave more than 8 per cent. of ash.

Preparations: Extractum Lupulini Fluidum. Oleoresina Lupulini.

LYCOPODIUM.

LYCOPODIUM.

The sporules of *Lycopodium clavatum* Linné, and of other species of *Lycopodium* (Nat. Ord., *Lycopodiaceæ*).

A fine powder, pale yellowish, very mobile, inodorous, tasteless, floating upon water and not wetted by it, and burning quickly when thrown into a flame. Under the microscope the granules are seen to be four-sided, reticulated, with short projections on the edges.

Lycopodium should be free from pollen, starch, sand and other impurities, all of which are easily detected by means of the microscope.

MACIS.

MACE.

The arillus of the fruit of *Myristica fragrans* Houttuyn (Nat. Ord., *Myristicaceæ*).

In narrow bands, one inch (25 millimeters) or more long, somewhat branched and lobed above, united to broader bands below; brownish-orange; fatty when scratched or pressed; odor fragrant, taste warm and aromatic.

MAGNESIA.

MAGNESIA.

[Light Magnesia.]

MgO; 40. — MgO; 20.

Magnesia should be kept in well-closed vessels.

A white, very light and very fine powder, slowly absorbing carbonic acid from the air, odorless, having an earthy, but no saline taste, and a faintly alkaline reaction when moistened with water. It is almost insoluble in water and insoluble in alcohol, and is not altered or affected by heat. On stirring 1 part of Magnesia with 15 parts of water, in a beaker, and allowing the mixture to stand for about half an hour, it will form a gelatinous mass of sufficient firmness to prevent it from falling out when the glass is inverted. A filtered solution of Magnesia in diluted sulphuric acid, mixed with chloride of ammonium and supersaturated with water of ammonia, yields, with test-solution of phosphate of sodium, a copious, white precipitate, soluble in acids.

On dropping a small portion of Magnesia into hot water, waiting until all air-bubbles have escaped, and then pouring the mixture into an excess of diluted sulphuric acid, no effervescence should take place (abs. of carbonate), nor should an insoluble residue remain (abs. of more than traces of other alkaline earths). A solution of Magnesia in a slight excess of diluted nitric acid should yield, at most, only a faint cloudiness with test-solution of chloride of barium (limit of sulphate), or of nitrate of silver (chloride).

Preparations: Ferri Oxidum Hydratum cum Magnesia. Pulvis Rhei Compositus. Trochisci Magnesiæ.

MAGNESIA PONDEROSA.

HEAVY MAGNESIA.

MgO ; 40. — MgO ; 20.

A white, dense and very fine powder, corresponding in all other properties and reactions with Magnesia (see *Magnesia*).

MAGNESII CARBONAS.

CARBONATE OF MAGNESIUM.

$(MgCO_3)_4.Mg(HO)_2.5H_2O$; 484. — $(MgO,CO_2)_4.MgO,HO.5HO$; 242.

Light, white, friable masses, or a light, white powder, odorless and tasteless, insoluble in alcohol, and almost insoluble in water, to which, however, it imparts a feebly alkaline reaction. When strongly heated, it loses water and carbonic acid gas, and is converted into magnesia. It is soluble in diluted hydrochloric acid, with copious effervescence. On supersaturating this solution with water of ammonia, and adding test-solution of phosphate of sodium, a white, crystalline precipitate, soluble in acids, is thrown down.

Distilled water, boiled with the salt, and, after filtration, evaporated to dryness, should not leave more than a trace of residue. The salt should be soluble in diluted hydrochloric acid to a colorless liquid; on supersaturating the clear solution with test-solution of carbonate of ammonium, it should not be rendered more than faintly opalescent (abs. of aluminium or more than traces of calcium). A two per cent. solution of the salt, prepared with the aid of acetic acid, should not be affected by hydrochloric acid, nor, after addition of test-solution of carbonate of ammonium with an excess of water of ammonia, by solution of sulphide of ammonium (abs. of metals). Another portion of the two per cent. solution should not at once be rendered more than faintly opalescent by test-solution of nitrate of barium (limit of sulphate), or of nitrate of silver (chloride).

Preparation: Mistura Magnesiæ et Asafœtidæ.

MAGNESII CITRAS GRANULATUS.

GRANULATED CITRATE OF MAGNESIUM.

Carbonate of Magnesium, *eleven parts*	11
Citric Acid, *forty-eight parts*	48
Bicarbonate of Sodium, *thirty-seven parts*	37
Sugar, in No. 60 powder, *eight parts*	8
Alcohol,	
Distilled Water, each, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the Carbonate of Magnesium intimately with *thirty-three* (33) *parts* of the Citric Acid, and enough Distilled Water to make a thick paste ; dry this at a temperature not exceeding 30° C. (86° F.), and reduce it to a fine powder. Then mix it intimately with the Sugar, the Bicarbonate of Sodium, and the remainder of the Citric Acid previously reduced to a very fine powder. Dampen the mass with a sufficient quantity of Alcohol, and rub it through a No. 20 tinned-iron sieve, to form a coarse, granular powder. Lastly, dry it in a moderately warm place.

Granulated Citrate of Magnesium should he kept in well-closed bottles.

A white, coarsely granular salt, deliquescent on exposure to air, odorless, having a mildly acidulous, refreshing taste, and an acid reaction. Soluble, with copious effervescence, in 2 parts of water at 15° C. (59° F.) and very soluble in boiling water; almost insoluble in alcohol. On adding chloride of ammonium to the aqueous solution of the salt, a portion of the liquid, when mixed with excess of solution of phosphate of ammonium and water of ammonia, yields a white crystalline precipitate, soluble in acids. On mixing another portion with test-solution of chloride of calcium, supersaturating with water of ammonia and filtering, the filtrate deposits a white precipitate on boiling.

The saturated aqueous solution of the salt, when mixed with a saturated solution of acetate of potassium and some acetic acid, should not yield a white, crystalline precipitate (abs. of tartrate).

MAGNESII SULPHAS.

SULPHATE OF MAGNESIUM.

$MgSO_4.7H_2O$; 246. — $MgO,SO_3.7HO$; 123.

[EPSOM SALT.]

Sulphate of Magnesium should be kept in well-closed vessels.

Small, colorless, right-rhombic prisms, or acicular needles, slowly efflorescent in dry air, odorless, having a cooling, saline and bitter taste, and a neutral reaction. Soluble in 0.8 part of water at 15° C. (59° F.), and in 0.15 part of boiling water; insoluble in alcohol. When heated, the salt gradually loses nearly 44 per cent. of its weight (water of crystallization), and at a strong, red heat it fuses, congealing on cooling to a white mass, which amounts to 48.7 per cent. of the original weight. The aqueous solution, mixed with solution of chloride of ammonium, yields, with excess of test-solution of phosphate of sodium and water of ammonia, a white, crystalline precipitate, soluble in acids. With test-solution of chloride of barium it yields a white precipitate insoluble in hydrochloric acid.

The aqueous solution should not be colored nor be precipitated by test-solution of ferrocyanide of potassium, hydrosulphuric acid or sulphide of ammonium (abs. of metals). A five per cent. solution, after addition of chloride of ammonium, should not be precipitated nor rendered turbid by test-solution of carbonate of ammonium and water of ammonia (abs. of other alkaline earths). A one per cent. solution should not yield more than a slight opalescence with test-solution of nitrate of silver (limit of chloride). If an aqueous solution of 1 Gm. of the salt, mixed with chloride of ammonium, be completely precipitated by solution of phosphate of ammonium and water of ammonia, the filtrate evaporated to dryness, the residue gently ignited and then dissolved in 5 C.c. of water, this solution, acidulated with a few drops of hydrochloric acid, should not become more than faintly opalescent on mixing 1 volume of it with 2 volumes of alcohol, nor on adding test-solution of chloride of barium to another portion (abs. of more than about 1 per cent. of sulphates of alkalies).

Preparation: Infusum Sennæ Compositum.

MAGNESII SULPHIS.

SULPHITE OF MAGNESIUM.

$MgSO_3.6H_2O$; 212. -- $MgO,SO_2.6HO$; 106.

Sulphite of Magnesium should be kept in well-stopped bottles.

A white, crystalline powder, gradually becoming oxidized on exposure to air, odorless, having a slightly bitter, somewhat sulphurous taste, and a neutral or slightly alkaline reaction. Soluble in 20 parts of water at 15° C. (59° F.), and in 19 parts of boiling water; insoluble in alcohol. When heated to 200° C. (392° F.), the salt loses its water of crystallization (50.9 per cent.), and is converted into magnesia and anhydrous sulphate of magnesium. The aqueous solution of the salt, mixed with chloride of ammonium, yields, with excess of test-solution of phosphate of sodium and water of ammonia, a white, crystalline precipitate soluble in acids. When treated with 4 times its weight of diluted hydrochloric acid, the salt dissolves completely and emits the odor of burning sulphur, without becoming cloudy (difference from hyposulphite). A one per cent. aqueous solution, strongly acidulated with hydrochloric acid, should not afford more than a slight cloudiness with test-solution of chloride of barium (limit of sulphate).

MAGNOLIA.

MAGNOLIA.

The bark of *Magnolia glauca*, *Magnolia acuminata*, and *Magnolia tripetala* Linné (Nat. Ord., *Magnoliaceæ*).

The bark from young wood is quilled or curved, thin, externally orange-brown and glossy, or light gray, with scattered warts and somewhat fissured, internally whitish or pale brownish and smooth; fracture short, in the inner layer somewhat fibrous; inodorous; taste somewhat astringent, pungent, and bitter. The bark of old wood, deprived of the cork, is whitish or brownish, fibrous, and less pungent.

MALTUM.

MALT.

The seed of *Hordeum distichum* Linné (Nat. Ord., *Graminaceæ*), caused to enter the incipient stage of germination by artificial means, and dried.

Malt should be fresh, of a color not darker than pale amber, and should have an agreeable odor and a sweet taste.

Preparation: Extractum Malti.

MANGANI OXIDUM NIGRUM.

BLACK OXIDE OF MANGANESE.

[DIOXIDE OF MANGANESE.]

Native, crude Binoxide of Manganese, containing at least 66 per cent. of the pure Oxide [MnO_2; 86. — *MnO_2; 43*].

A heavy, grayish-black, more or less gritty powder, permanent in the air, odorless and tasteless, and insoluble in water or alcohol. At a red heat the Oxide gives off oxygen gas; and, if heated with hydrochloric acid, it causes the evolution of chlorine gas. On intimately mixing 1 part of the Oxide with 1 part of hydrate of potassium and 1 part of chlorate of potassium, introducing the mass into a crucible, moistening with water, drying and igniting, a dark, fused mass is obtained, which yields a green solution with water, changing to purplish-red on being boiled or on the addition of diluted sulphuric acid.

If 5 Gm. of the finely powdered Oxide be digested with 15 Gm. of water and 20 Gm. of hydrochloric acid, then 21 Gm. of ferrous sulphate be added, and the mixture heated to boiling, the cooled filtrate should not acquire a blue color on the addition of freshly prepared test-solution of ferricyanide of potassium (presence of at least 66 per cent. of pure Dioxide of Manganese).

MANGANI SULPHAS.

SULPHATE OF MANGANESE.

$MnSO_4.4H_2O$; 222. — *$MnO,SO_3.4HO$; 111.*

Sulphate of Manganese should be kept in well-stopped bottles.

Colorless, or pale rose-colored, transparent, right-rhombic prisms, crystallized at a temperature between 20° and 30° C. (68°–86° F.), slightly efflorescent in dry air, odorless, having a slightly bitter and astringent taste, and a faintly acid reaction. Soluble in 0.7 part of water at 15° C. (59° F.), and in 0.8 part of boiling water; insoluble in alcohol. The aqueous solution of the salt yields, with sulphide of ammonium, a flesh-colored precipitate completely soluble in moderately diluted acetic acid (abs. of zinc); with test-solution of ferrocyanide of potassium it affords a reddish-white precipitate, and a brown one with test-solution of ferricyanide of potassium. Test-solution of chloride of barium produces a white precipitate insoluble in hydrochloric acid.

The aqueous solution of the salt should not be affected by solution of tannic acid (abs. of iron). When slightly acidulated with hydrochloric acid, it should remain unaffected by hydrosulphuric acid (abs. of copper). If all the Manganese be precipitated from the aqueous solution by sulphide of ammonium, and the filtrate be evaporated, not more than a trace of fixed residue should remain on gentle ignition (limit of alkalies or magnesia).

MANNA.

MANNA.

The concrete, saccharine exudation of *Fraxinus Ornus* Linné (Nat. Ord., *Oleaceæ*).

In flattish, three-edged pieces, occasionally eight inches (20 centimeters) long, and two inches (5 centimeters) broad, usually smaller; friable; externally yellowish-white, internally white, porous, and crystalline; or in fragments of different sizes, brownish-white and somewhat glutinous on the surface, internally white and crystalline; odor honey-like; taste sweet, slightly bitter and faintly acrid. It is slowly but almost completely soluble in 15 parts of boiling alcohol. Sp. gr. 0.834.

Manna consisting of brownish, viscid masses containing few or no fragments of a crystalline structure, should be rejected.

Preparation: Infusum Sennæ Compositum.

MARRUBIUM.

MARRUBIUM.

[HOREHOUND.]

The leaves and tops of *Marrubium vulgare* Linné (Nat. Ord., *Labiatæ*).

Leaves about one inch (25 millimeters) long, opposite, petiolate, roundish-ovate, obtuse, coarsely crenate, strongly rugose, downy above, white-hairy beneath; branches quadrangular, white, tomentose; flowers in dense, axillary, woolly whorls, with a stiffly ten-toothed calyx, a whitish bi-labiate corolla and four included stamens; aromatic and bitter.

MASSA COPAIBÆ.

MASS OF COPAIBA.

[PILULÆ COPAIBÆ, *Pharm.*, 1870.]

Copaiba, *ninety-four parts*	94
Magnesia, recently prepared, *six parts*	6
To make *one hundred parts*	100

Mix them intimately, and set the mixture aside until it concretes into a pilular mass.

Should the mixture not concrete in eight or ten hours, a deficiency of water in the Copaiba may be inferred; and this difficulty may be obviated, in subsequent operations, by shaking the Copaiba with one-twentieth of its weight of water, allowing it to stand until all the uncombined water has subsided, and then decanting and keeping it in closed bottles for use.

MASSA FERRI CARBONATIS.

MASS OF CARBONATE OF IRON.

[PILULA FERRI CARBONATIS, *Pharm.*, 1870.]

Sulphate of Iron, *one hundred parts*	100
Carbonate of Sodium, *one hundred and ten parts*	110
Clarified Honey, *thirty-eight parts*	38
Sugar, in coarse powder, *twenty-five parts*	25
Syrup,	
Distilled Water, each, *a sufficient quantity*,	
To make *one hundred parts*	100

Dissolve the Sulphate of Iron and the Carbonate of Sodium separately, each in *two hundred* (200) *parts* of boiling Distilled Water, and, having added *twenty-five* (25) *parts* of Syrup to the solution of the iron salt, filter both solutions. Mix them, when cold, in a bottle just large enough to hold them, or add enough Distilled Water to fill it; close the bottle accurately with a stopper, and set it aside so that the carbonate of iron may subside. Pour off the supernatant liquid, and, having mixed Syrup and Distilled Water in the proportion of *one* (1) *part* of Syrup to *sixteen* (16) *parts* of Water, wash the precipitate with the mixture until the washings no longer have a saline taste. Drain the precipitate on a flannel cloth, and express as much of the Water as possible. Lastly, mix the precipitate immediately with the Honey and Sugar, and, by means of a water-bath, evaporate the mixture, constantly stirring, until it is reduced to *one hundred* (100) *parts.*

MASSA HYDRARGYRI.

MASS OF MERCURY.

[PILULÆ HYDRARGYRI, *Pharm.*, 1870. BLUE MASS. BLUE PILL.]

Mercury, *thirty-three parts*	33
Glycyrrhiza, in No. 60 powder, *five parts*	5
Althæa, in No. 60 powder, *twenty-five parts*	25
Glycerin, *three parts*	3
Honey of Rose, *thirty-four parts*	34
To make *one hundred parts*	100

Triturate the Mercury with the Honey of Rose and Glycerin until it is extinguished. Then gradually add the Glycyrrhiza and Althæa, and continue the trituration until globules of Mercury cease to be visible under a lens magnifying ten diameters.

MASTICHE.

MASTIC.

A concrete resinous exudation from *Pistacia Lentiscus* Linné (Nat. Ord., *Terebinthaceæ, Anacardieæ*).

Globular or elongated tears, of about the size of a pea, usually covered with a whitish dust, pale yellow, transparent, having a glass-like lustre, brittle, becoming plastic when chewed; of a weak, resinous odor, and slight, terebinthinate taste.

Preparation: Pilulæ Aloes et Mastiches.

MATICO.

MATICO.

The leaves of *Artanthe elongata* Miquel (Nat. Ord., *Piperaceæ*).

From four to six inches (10 to 15 centimeters) long, short-petiolate, oblong-lanceolate, pointed, unequally heart-shaped, very finely crenulate, tesselated above, reticulate beneath, the meshes small, and the veins densely brownish-hairy; aromatic, spicy, and bitterish.

Preparations: Extractum Matico Fluidum. Tinctura Matico.

MATRICARIA.

MATRICARIA.

[GERMAN CHAMOMILE.]

The flower-heads of *Matricaria Chamomilla* Linné (Nat. Ord., *Compositæ*).

About three-fourths of an inch (18 millimeters) broad, composed of a flattish, imbricate involucre, a conical, hollow, naked receptacle, about fifteen white, ligulate, reflexed ray-flowers, and numerous yellow, tubular, perfect flowers without pappus; strongly aromatic and bitter.

The similar flower-heads of *Anthemis arvensis* Linné, and *Maruta Cotula* De Candolle, have a conical, solid, and chaffy receptacle.

MEL.

HONEY.

A saccharine secretion deposited in the honey-comb by *Apis mellifica* Linné (Class, *Insecta;* Order, *Hymenoptera*).

A syrupy liquid of a light yellowish or pale brownish-yellow color, translucent, gradually becoming crystalline and opaque, having a characteristic odor and a sweet, faintly acrid taste. When diluted with 2 parts of water, the resulting liquid is almost clear, not stringy, has the sp. gr. 1.101 to 1.115, a brownish or yellowish color, and a faintly acid reaction.

If 1 part of Honey be dissolved in 4 parts of water, a clear solution should result, which should not be rendered more than faintly opalescent by a few drops of test-solution of nitrate of silver (chloride), or of nitrate of barium (sulphate). If a small portion of Honey be diluted with 1 volume of water and then gradually mixed with 5 volumes of absolute alcohol, it should not become more than faintly opalescent and should neither become opaque, nor deposit a slimy substance at the bottom and along the sides of the test-tube. When incinerated in small portions at a time, in a platinum crucible, it should not leave more than 0.2 per cent. of ash (any larger percentage of ash and failure to respond to the preceding tests indicating the presence of glucose or other foreign admixtures). Water boiled with Honey, and allowed to cool, should not be rendered blue or green on the addition of test-solution of iodine (abs. of starch).

Preparation: Mel Despumatum.

MEL DESPUMATUM.

CLARIFIED HONEY.

Honey, *a convenient quantity.*

Heat the Honey, by means of a water-bath, remove the scum and strain.

Preparations: Confectio Rosæ. Mel Rosæ.

MEL ROSÆ.

HONEY OF ROSE.

Red Rose, in No. 40 powder, *eight parts*	8
Clarified Honey, *ninety-two parts*	92
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*....	100

Moisten the powder with *two* (2) *parts* of Diluted Alcohol, pack it firmly in a conical glass percolator, and gradually pour Diluted Alcohol upon it until *thirty-three* (33) *parts* of percolate are obtained. Reserve the first *three* (3) *parts* of the percolate, evaporate the remainder, by means of a water-bath, to *five* (5) *parts,* add the reserved portion, and mix the whole with the Clarified Honey.

MELISSA.

MELISSA.

[BALM.]

The leaves and tops of *Melissa officinalis* Linné (Nat. Ord., *Labiatæ*).

Leaves about two inches (5 centimeters) long, petiolate, ovate, obtuse, crenate, somewhat hairy, glandular; branches quadrangular; flowers in about four-flowered cymules, with a tubular, bell-shaped, five-toothed calyx, a whitish or purplish two-lipped corolla, and four stamens; fragrant, aromatic, and bitterish.

MENISPERMUM.

MENISPERMUM.

[CANADIAN MOONSEED.]

The rhizome and rootlets of *Menispermum canadense* Linné (Nat. Ord., *Menispermaceæ*).

Rhizome several feet long, about a quarter of an inch (6 millimeters) thick, yellowish-brown or brown, finely wrinkled longitudinally and beset with numerous thin, rather brittle rootlets; fracture, tough, woody; internally yellowish, with a thickish bark, a circle of porous, short, nearly square wood-wedges, and a large central pith; nearly inodorous; taste bitter.

MENTHA PIPERITA.

PEPPERMINT.

The leaves and tops of *Mentha piperita* Linné (Nat. Ord., *Labiatæ*).

Leaves about two inches (5 centimeters) long, petiolate, ovate-lanceolate, acute, sharply serrate, glandular, nearly smooth; branches quadrangular, often purplish; flowers in terminal, conical spikes, with a tubular, five-toothed, often purplish calyx, a purplish four-lobed corolla, and four short stamens; odor aromatic; taste pungent and cooling.

Preparations: Spiritus Menthæ Piperitæ. Vinum Aromaticum.

MENTHA VIRIDIS.

SPEARMINT.

The leaves and tops of *Mentha viridis* Linné (Nat. Ord., *Labiatæ*).

Leaves about two inches (5 centimeters) long, sub-sessile, lance-ovate, acute, serrate, glandular, nearly smooth; branches quadrangular, mostly light green; flowers in terminal, interrupted, narrow, acute spikes, with a tubular, sharply five-toothed calyx, a light purplish, four-lobed corolla, and four rather long stamens: aromatic and pungent.

Preparation: Spiritus Menthæ Viridis.

MEZEREUM.

MEZEREUM.

The bark of *Daphne Mezereum* Linné, and of other species of *Daphne* (Nat. Ord., *Thymelaceæ*).

In long, thin bands, folded or rolled into disks; outer surface yellowish or brownish-yellow, with transverse scars, and minute, blackish dots, underneath of a light greenish color; inner surface whitish, silky; bast in transverse layers, very tough; inodorous, very acrid.

Preparations: Decoctum Sarsaparillæ Compositum. Extractum Sarsaparillæ Compositum Fluidum. Extractum Mezerei. Extractum Mezerei Fluidum.

MISTURA AMMONIACI.

AMMONIAC MIXTURE.

Ammoniac, *four parts*	4
Water, *one hundred parts*	100

Rub the Ammoniac with the Water, gradually added, until they are thoroughly mixed, and strain.

MISTURA AMYGDALÆ.

ALMOND MIXTURE.

Sweet Almond, *six parts*	6
Acacia, in fine powder, *one part*	1
Sugar, *three parts*	3
Distilled Water, *one hundred parts*	100

Having blanched the Almond, add the Acacia and Sugar, and beat them in a mortar, until they are thoroughly mixed ; then rub the mixture with the Distilled Water, gradually added, and strain.

MISTURA ASAFŒTIDÆ.

ASAFETIDA MIXTURE.

Asafetida, *four parts*	4
Water, *one hundred parts*	100

Rub the Asafetida with the Water, gradually added, until they are thoroughly mixed, and strain.

MISTURA CHLOROFORMI.

CHLOROFORM MIXTURE.

Purified Chloroform, *eight parts*	8
Camphor, *two parts*	2
Fresh Yolk of Egg, *ten parts*	10
Water, *eighty parts*	80
To make *one hundred parts*	100

Rub the Yolk of Egg in a mortar, first by itself, then with the Camphor, previously dissolved in the Chloroform, and lastly, with the Water, gradually added, so as to make a uniform mixture.

MISTURA CRETÆ.

CHALK MIXTURE.

Compound Chalk Powder, *twenty parts*	20
Cinnamon Water, *forty parts*	40
Water, *forty parts*	40
To make *one hundred parts*	100

Rub the Powder with the Cinnamon Water and Water, gradually added, until they are thoroughly mixed.

This preparation should be freshly made, when wanted for use.

MISTURA FERRI COMPOSITA.

COMPOUND IRON MIXTURE.

[GRIFFITH'S MIXTURE.]

Sulphate of Iron, in coarse powder, *six parts*	6
Myrrh, in small pieces, *eighteen parts*	18
Sugar, *eighteen parts*	18
Carbonate of Potassium, *eight parts*	8
Spirit of Lavender, *fifty parts*	50
Rose Water, *nine hundred parts*	900
To make *one thousand parts*	1000

Rub the Myrrh, Sugar, and Carbonate of Potassium with the Rose Water, gradually added; then with the Spirit of Lavender, and lastly, with the Sulphate of Iron. Pour the mixture immediately into a bottle, which should be well stopped.

This preparation should be freshly made, when wanted for use.

MISTURA FERRI ET AMMONII ACETATIS.

MIXTURE OF ACETATE OF IRON AND AMMONIUM.

[BASHAM'S MIXTURE.]

Tincture of Chloride of Iron, *two parts*	2
Diluted Acetic Acid, *three parts*	3
Solution of Acetate of Ammonium, *twenty parts*	20
Elixir of Orange, *ten parts*	10
Syrup, *fifteen parts*	15
Water, *fifty parts*	50
To make *one hundred parts*	100

To the Solution of Acetate of Ammonium, previously mixed with the Diluted Acetic Acid, add the Tincture of Chloride of Iron, and afterward the Elixir of Orange, Syrup, and Water, and mix the whole thoroughly.

MISTURA GLYCYRRHIZÆ COMPOSITA.

COMPOUND MIXTURE OF GLYCYRRHIZA.

[Brown Mixture.]

Pure Extract of Glycyrrhiza, *three parts*	3
Sugar, *three parts*	3
Acacia, in fine powder, *three parts*	3
Camphorated Tincture of Opium, *twelve parts*	12
Wine of Antimony, *six parts*	6
Spirit of Nitrous Ether, *three parts*	3
Water, *seventy parts*	70
To make *one hundred parts*	100

Rub the Extract of Glycyrrhiza, Sugar, and Acacia with the Water, gradually added ; then add the other ingredients, and mix the whole thoroughly.

MISTURA MAGNESIÆ ET ASAFŒTIDÆ.

MIXTURE OF MAGNESIA AND ASAFETIDA.

[Dewees' Carminative.]

Carbonate of Magnesium, *five parts*	5
Tincture of Asafetida, *seven parts*	7
Tincture of Opium, *one part*	1
Sugar, *ten parts*	10
Distilled Water, *a sufficient quantity,*	
To make *one hundred parts*	100

Rub the Carbonate of Magnesium and Sugar, in a mortar, with the Tincture of Asafetida and Tincture of Opium. Then gradually add enough Distilled Water to make the mixture weigh *one hundred* (100) *parts.*

MISTURA POTASSII CITRATIS.

MIXTURE OF CITRATE OF POTASSIUM.

[Neutral Mixture.]

Fresh Lemon Juice, strained, *one hundred parts*	100
Bicarbonate of Potassium, about *ten parts*, or, *a sufficient quantity.*	

Add the Bicarbonate of Potassium gradually to the Lemon Juice until it is neutralized.

This preparation should be freshly made, when wanted for use.

MISTURA RHEI ET SODÆ.

MIXTURE OF RHUBARB AND SODA.

Bicarbonate of Sodium, *thirty parts*	30
Fluid Extract of Rhubarb, *thirty parts*	30
Spirit of Peppermint, *thirty parts*	30
Water, *a sufficient quantity,*	
To make *one thousand parts*	1000

Dissolve the Bicarbonate of Sodium in *five hundred* (500) *parts* of Water. Add the Fluid Extract of Rhubarb and the Spirit of Peppermint, and lastly, enough Water to make the mixture weigh *one thousand* (1000) *parts.*

MORPHINA.

MORPHINE.

$C_{17}H_{19}NO_3.H_2O$; 303. — $C_{34}H_{19}NO_6.2HO$; 303.

[Morphia, *Pharm.*, 1870.]

An alkaloid prepared from Opium.

Colorless or white, shining, prismatic crystals, or a crystalline powder, permanent in the air, odorless, having a bitter taste, and an alkaline reaction. Very slightly soluble in cold water ; soluble in 500 parts of boiling water ; in 100 parts of alcohol at 15° C. (59° F.), and in 36 parts of boiling alcohol ; also in 13 parts of boiling absolute alcohol ; almost insoluble in ether and very slightly soluble in chloroform. When heated to 120° C. (248° F.), the crystals lose their water of crystallization (5.94 per cent.). When heated on platinum foil they fuse, then char, and are finally completely dissipated. Nitric acid first reddens Morphine and then renders it yellow. With test-solution of ferric chloride, Morphine yields a blue color which is changed to green by an excess of the reagent, and which is destroyed by free acids or alcohol, but not by alkalies. A solution of Morphine, acidified with acetic or sulphuric acid, is not precipitated by tannic acid.

On adding 20 parts of colorless solution of soda or of potassa to 1 part of Morphine, a clear, colorless solution should result, without a residue (abs. of other alkaloids). Morphine yields a colorless solution with cold, concentrated sulphuric acid, which should not acquire more than a reddish tint by standing for some time, and which should not assume a purple or violet, but merely a greenish color on the addition of a small crystal of bichromate of potassium (abs. of and difference from strychnine, brucine, etc.).

MORPHINÆ ACETAS.

ACETATE OF MORPHINE.

$C_{17}H_{19}NO_3.HC_2H_3O_2.3H_2O$; 399. — $C_{34}H_{19}NO_6.C_4H_4O_4,6HO$; 399.

[Morphiæ Acetas, *Pharm.*, 1870.]

Acetate of Morphine should be kept in small, well-stopped vials.

A white, or yellowish-white, crystalline or amorphous powder, slowly losing acetic acid when kept for some time and exposed to the air, having a faintly acetous odor, a bitter taste, and a neutral or faintly alkaline reaction. When freshly prepared, the salt is soluble in 12 parts of water and in 68 parts of alcohol at 15° C. (59° F.); if it has been kept for some time, it is incompletely soluble in water, unless a little acetic acid is added. It is also soluble in 1.5 part of boiling water, in 14 parts of boiling alcohol, and in 60 parts of chloroform. When heated on platinum foil, the salt is entirely dissipated. Solution of soda or potassa added to an aqueous solution of the salt throws down a white precipitate, which is soluble in an excess of the alkali. The precipitate is affected by reagents in the same manner as morphine (see *Morphina*). On adding sulphuric acid to the salt, acetous vapors are evolved.

MORPHINÆ HYDROCHLORAS.

HYDROCHLORATE OF MORPHINE.

$C_{17}H_{19}NO_3.HCl.3H_2O$; 375.4. — $C_{34}H_{19}NO_6.HCl.6HO$; 375.4.

[MORPHIÆ MURIAS, *Pharm.*, 1870.]

White, feathery, flexible, acicular crystals of a silky lustre, permanent in the air, odorless, having a bitter taste, and a neutral reaction. Soluble in 24 parts of water and in 63 parts of alcohol at 15° C (59° F.); in about 0.5 part of boiling water and in 31 parts of boiling alcohol; insoluble in ether. When heated to 130° C. (266° F.), the salt loses its water of crystallization (14.38 per cent.). When heated on platinum foil, it is entirely dissipated.

Solution of soda or potassa added to an aqueous solution of the salt throws down a white precipitate, which is soluble in an excess of the alkali. The precipitate is affected by reagents in the same manner as morphine (see *Morphina*). The aqueous solution yields, with test-solution of nitrate of silver, a white precipitate, insoluble in nitric acid, but soluble in ammonia.

MORPHINÆ SULPHAS.

SULPHATE OF MORPHINE.

$(C_{17}H_{19}NO_3)_2.H_2SO_4.5H_2O$; 758. — $C_{34}H_{19}NO_6.HO,SO_3.5HO$: 379.

[MORPHIÆ SULPHAS, *Pharm.*, 1870.]

White, feathery, acicular crystals of a silky lustre, permanent in the air, odorless, having a bitter taste and a neutral reaction. Soluble in 24 parts of water and in 702 parts of alcohol at 15° C. (59° F.); in 0.75 part of boiling water and in 144 parts of boiling alcohol. When heated to 130° C. (266° F.), the salt loses its water of crystallization (11.87 per cent.). When heated on platinum foil, it is entirely dissipated.

Solution of soda or potassa added to an aqueous solution of the salt throws down a white precipitate, which is soluble in an excess of the alkali. The precipitate is affected by reagents in the same manner as morphine (see *Morphina*). The aqueous solution yields, with test-solution of chloride of barium, a white precipitate insoluble in hydrochloric acid.

Preparations: Pulvis Morphinæ Compositus. Trochisci Morphinæ et Ipecacuanhæ.

MOSCHUS.

MUSK.

The dried secretion from the preputial follicles of *Moschus moschiferus* Linné (Class, *Mammalia ;* Order, *Ruminantia*).

In irregular, crummy, somewhat unctuous grains, dark reddish-brown, of a peculiar, penetrating and persistent odor, and bitterish taste. It is contained in oval or roundish sacs about one and one-half to two inches (4 to 5 centimeters) in diameter, on one side invested with a smoothish membrane, on the other side covered with stiff, appressed, grayish hairs, concentrically arranged around two orifices near the center.

About 10 per cent. of Musk is soluble in alcohol, the tincture being light brownish-yellow, and on the addition of water becoming slightly turbid. About 50 per cent. of Musk is soluble in water, the solution being deep brown, faintly acid, and strongly odorous.

Preparation : Tinctura Moschi.

MUCILAGO ACACIÆ.

MUCILAGE OF ACACIA.

Acacia, in small fragments, *thirty-four parts*	34
Water, *a sufficient quantity,*	
To make *one hundred parts*	100

Wash the Acacia with cold Water, then add to it *sixty-six* (66) *parts* of Water, agitate occasionally until it is dissolved, and strain.

Preparation: Syrupus Acaciæ.

MUCILAGO CYDONII.

MUCILAGE OF CYDONIUM.

Cydonium, *two parts*	2
Distilled Water, *one hundred parts*	100

Macerate the Cydonium for half an hour, in a covered vessel, with the Distilled Water, frequently agitating. Then drain the liquid through muslin, without pressure.

This preparation should be freshly made, when required for use.

MUCILAGO SASSAFRAS MEDULLÆ.

MUCILAGE OF SASSAFRAS PITH.

Sassafras Pith, *two parts*	2
Water, *one hundred parts*	100

Macerate for three hours and strain.

MUCILAGO TRAGACANTHÆ.

MUCILAGE OF TRAGACANTH.

Tragacanth, *six parts*	6
Glycerin, *eighteen parts*	18
Water, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the Glycerin with *seventy-six* (76) *parts* of Water, heat the mixture to boiling, add the Tragacanth, and let it macerate for twenty-four hours, stirring occasionally. Then add enough Water to make the mixture weigh *one hundred* (100) *parts*, beat it so as to render it of uniform consistence, and strain forcibly through muslin.

MUCILAGO ULMI.

MUCILAGE OF ELM.

Elm, sliced and dried, *six parts*	6
Boiling Water, *one hundred parts*	100

Macerate for two hours, in a covered vessel, and strain.

MYRISTICA.

NUTMEG.

The kernel of the seed of *Myristica fragrans* Houttuyn (Nat. Ord., *Myristicaceæ*), deprived of its testa.

Oval or roundish-ovate, about one inch (25 millimeters) long, light brown, reticulately furrowed, with a circular scar on the broad end; internally pale brownish, with dark brown veins, and of a fatty lustre; strongly aromatic, somewhat bitter.

Preparations: Pulvis Aromaticus. Tinctura Lavandulæ Composita.

MYRRHA.

MYRRH.

A gum-resin obtained from *Balsamodendron Myrrha* Nees (Nat. Ord., *Burseraceæ*).

In roundish or irregular tears or masses, dusty, brownish-yellow or reddish-brown; fracture waxy, somewhat splintery, translucent on the edges, sometimes marked with whitish veins; odor balsamic; taste bitter and acrid. When triturated with water, Myrrh yields a brownish-yellow emulsion; with alcohol it yields a brownish-yellow tincture which acquires a purple hue on the addition of nitric acid.

Dark-colored pieces, the alcoholic solution of which is not rendered purple by nitric acid, and pieces of gum which dissolve completely, as well as those which merely swell in water, should be rejected.

Preparations: Mistura Ferri Composita. Pilulæ Aloes et Myrrhæ. Pilulæ Ferri Compositæ. Pilulæ Galbani Compositæ. Tinctura Aloes et Myrrhæ. Tinctura Myrrhæ.

NUX VOMICA.

NUX VOMICA.

The seed of *Strychnos Nux-vomica* Linné (Nat. Ord., *Loganiaceæ*).

About one inch (25 millimeters) in diameter, orbicular, grayish or greenish-gray; soft-hairy, of a silky lustre, with a slight ridge extending from the center of one side to the edge; internally horny, somewhat translucent, very tough, with a large, circular cavity, into which the heart-shaped, nerved cotyledons project. It is inodorous and persistently bitter.

Preparations: Abstractum Nucis Vomicæ. Extractum Nucis Vomicæ. Extractum Nucis Vomicæ Fluidum. Tinctura Nucis Vomicæ.

OLEATUM HYDRARGYRI.

OLEATE OF MERCURY.

Yellow Oxide of Mercury, thoroughly dried, *ten parts*	10
Oleic Acid, *ninety parts*	90
To make *one hundred parts*	100

Heat the Oleic Acid, contained in a porcelain vessel, to near 74° C. (165.2° F.), taking care not to exceed this temperature. Gradually add the Oxide of Mercury, and stir until it is dissolved.

OLEATUM VERATRINÆ.

OLEATE OF VERATRINE.

Veratrine, *two parts*	2
Oleic Acid, *ninety-eight parts*	98
To make *one hundred parts*	100

Rub the Veratrine with a small quantity of the Oleic Acid, in a warm mortar, to a smooth paste. Add this to the remainder of the Oleic Acid, heated in a porcelain capsule, on a water-bath, and stir until it is dissolved.

OLEORESINA ASPIDII.

OLEORESIN OF ASPIDIUM.

[Oleoresina Filicis, *Pharm.*, 1870.]

Aspidium, in No. 60 powder, *one hundred parts*	100
Stronger Ether, *a sufficient quantity.*	

Put the Aspidium into a cylindrical glass percolator, provided with a cover and receptacle suitable for volatile liquids, press it firmly, and gradually pour Stronger Ether upon it, until *one hundred and fifty* (150) *parts* of liquid have slowly passed. Recover the greater part of the Ether by distillation on a water-bath, and expose the residue, in a capsule, until the remaining Ether has evaporated.

Keep the Oleoresin in a well-stopped bottle.

Note.—Oleoresin of Aspidium usually deposits, on standing, a granular-crystalline substance. This should be thoroughly mixed with the liquid portion, before use.

OLEORESINA CAPSICI.

OLEORESIN OF CAPSICUM.

Capsicum, in No. 60 powder, *one hundred parts* 100
Stronger Ether, *a sufficient quantity.*

Put the Capsicum into a cylindrical percolator, provided with a cover and receptacle suitable for volatile liquids, press it firmly, and gradually pour Stronger Ether upon it, until *one hundred and fifty* (150) *parts* of liquid have slowly passed. Recover the greater part of the Ether by distillation on a water-bath, and expose the residue, in a capsule, until the remaining Ether has evaporated. Lastly, pour off the liquid portion, transfer the remainder to a strainer, and, when the separated fatty matter (which is to be rejected) has been completely drained, mix all the liquid portions together.

Keep the Oleoresin in a well-stopped bottle.

Preparation : Emplastrum Capsici.

OLEORESINA CUBEBÆ.

OLEORESIN OF CUBEB.

Cubeb, in No. 60 powder, *one hundred parts* 100
Stronger Ether, *a sufficient quantity.*

Put the Cubeb into a cylindrical percolator, provided with a cover and receptacle suitable for volatile liquids, press it firmly, and gradually pour Stronger Ether upon it, until *one hundred and fifty* (150) *parts* of liquid have slowly passed. Recover the greater part of the Ether by distillation on a water-bath, and expose the residue, in a capsule, until the remaining Ether has evaporated. Transfer the remainder to a close vessel, and let it stand until it ceases to deposit a waxy and crystalline matter. Lastly, pour off the Oleoresin.

Keep the Oleoresin in a well-stopped bottle.

Preparation: Trochisci Cubebæ.

OLEORESINA LUPULINI.

OLEORESIN OF LUPULIN.

[Oleoresina Lupulinæ, *Pharm.*, 1870.]

Lupulin, *one hundred parts* 100
Stronger Ether, *a sufficient quantity.*

Put the Lupulin into a narrow, cylindrical percolator, provided with a cover and receptacle suitable for volatile liquids, press it firmly, and gradually pour Stronger Ether upon it, until *one hundred and fifty* (150) *parts* of liquid have slowly passed. Recover the greater part of the Ether by distillation on a water-bath, and expose the residue, in a capsule, until the remaining Ether has evaporated.

Keep the Oleoresin in a well-stopped, wide-mouthed bottle.

OLEORESINA PIPERIS.

OLEORESIN OF PEPPER.

Pepper, in No. 60 powder, *one hundred parts* 100
Stronger Ether, *a sufficient quantity.*

Put the Pepper into a cylindrical percolator, provided with a cover and receptacle suitable for volatile liquids, press it firmly, and gradually pour Stronger Ether upon it, until *one hundred and fifty* (150) *parts* of liquid have slowly passed. Recover the greater part of the Ether by distillation on a water-bath, and expose the residue, in a capsule, until the remaining Ether has evaporated, and the deposition of piperine, in crystals, has ceased. Lastly, separate the Oleoresin from the piperine by expression through a muslin strainer.

Keep the Oleoresin in a well-stopped bottle.

OLEORESINA ZINGIBERIS.

OLEORESIN OF GINGER.

Ginger, in No. 60 powder, *one hundred* (100) *parts* 100
Stronger Ether, *a sufficient quantity.*

Put the Ginger into a cylindrical percolator, provided with a cover and receptacle suitable for volatile liquids, press it firmly, and gradually pour

Stronger Ether upon it, until *one hundred and fifty* (150) *parts* of liquid have slowly passed, or until the Ginger is exhausted. Recover the greater part of the Ether by distillation on a water-bath, and expose the residue, in a capsule, until the remaining Ether has evaporated.

Keep the Oleoresin in a well-stopped bottle.

OLEUM ADIPIS.

LARD OIL.

A fixed oil expressed from Lard at a low temperature.

A colorless or pale yellowish, oily liquid, becoming opaque at or below 0° C. (32° F.), having a slightly fatty odor and a bland taste. Sp. gr. 0.900 to 0.920.

OLEUM ÆTHEREUM.

ETHEREAL OIL.

A volatile liquid, consisting of equal volumes of Heavy Oil of Wine and of Stronger Ether.

Alcohol, *twenty-four parts*	24
Sulphuric Acid, *fifty-four parts*	54
Distilled Water, *one part*	1
Stronger Ether, *a sufficient quantity.*	

Add the Acid slowly to the Alcohol, mix them thoroughly, and allow the mixture to stand for twelve hours; then pour the clear liquid into a tubulated retort of such capacity that the mixture shall nearly fill it. Insert a thermometer through the tubulure, so that the bulb shall be deeply immersed in the liquid, and, having connected the retort with a well-cooled condenser, distil, by means of a sand-bath, at a temperature between 150° and 157° C. (302° and 314.6° F.), until the liquid ceases to come over, or until a black froth begins to rise in the retort. Separate the yellow, ethereal liquid from the distillate, and expose it to the air, for twenty-four hours, in a shallow capsule. Then transfer it to a wet filter, and, when the watery portion has drained off, wash the oil which is left on the filter with the Distilled Water. When this, also, has drained off, transfer the oil to a graduated measure, and add to it an equal volume of Stronger Ether.

A transparent, nearly colorless, volatile liquid, of a peculiar, aromatic, ethereal odor, a pungent, refreshing, bitterish taste, and a neutral reaction to dry litmus paper. Sp. gr. 0.910.

Preparation: Spiritus Ætheris Compositus.

OLEUM AMYGDALÆ AMARÆ.

OIL OF BITTER ALMOND.

A volatile oil obtained from Bitter Almond by maceration with water, and subsequent distillation.

A colorless or yellowish, thin liquid, of a peculiar, aromatic odor, a bitter and burning taste, and a neutral reaction. Sp. gr. 1.060 to 1.070 (after removal of hydrocyanic acid, 1.043 to 1.049). Soluble in 300 parts of water, and in alcohol and in ether, in all proportions; also in nitric acid, at the ordinary temperature, without the evolution of nitrous vapors.

When heated to 80° C. (176° F.), the Oil should yield no distillate having the odor or characteristics of chloroform or of alcohol. If 1 part of the Oil be dissolved in 4 parts of alcohol, then 1 part of potassa added, the mixture heated for a few minutes, then evaporated to one-third, and cooled, the resulting liquid should have a brownish-yellow color, and should be soluble in water with but slight turbidity, but without depositing a brownish-yellow sediment (abs. of nitrobenzol).

Preparation: Aqua Amygdalæ Amaræ.

OLEUM AMYGDALÆ EXPRESSUM.

EXPRESSED OIL OF ALMOND.

A fixed oil expressed from Bitter or Sweet Almond.

A colorless or pale straw-colored, oily liquid, almost inodorous, and of a mild, nutty taste. Sp. gr. 0.914 to 0.920. Only slightly soluble in alcohol, but soluble in ether and in chloroform, in all proportions. It does not congeal until cooled to near − 20° C. (− 4° F.).

On placing 2 drops of concentrated sulphuric acid upon about 8 drops of the Oil, on a white plate, no dark color should appear at the edge of the acid, and, after stirring, the mixture should not assume a dirty, yellow color retaining its tint for several minutes (difference from most other fixed oils).

Preparation: Unguentum Aquæ Rosæ.

OLEUM ANISI.

OIL OF ANISE.

A volatile oil distilled from Anise, or from Illicium.

Oil of Anise is a colorless or pale yellow, thin liquid, having the characteristic odor of anise and a sweetish, mildly aromatic taste. Its sp. gr. is about 0.976 to 0.990, increasing by age. At 10° to 15° C. (50°-59° F.) it solidifies to a crystalline mass, which does not resume its fluidity until the temperature rises to about 17° C. (62.6° F.). The Oil is soluble in an equal weight of alcohol.

Oil of Illicium has nearly the same properties, except that it congeals at about 2° C. (35.6° F.).

Preparations: Aqua Anisi. Spiritus Anisi. Tinctura Opii Camphorata. Trochisci Glycyrrhizæ et Opii.

OLEUM AURANTII CORTICIS.

OIL OF ORANGE PEEL.

A volatile oil, extracted by mechanical means from fresh Orange Peel.

A pale yellowish liquid, having the characteristic, aromatic odor of orange, an aromatic, somewhat bitter taste, and a neutral reaction. Sp. gr. about 0.860. It is soluble in 2 parts of alcohol.

By keeping, the Oil becomes thicker and acquires a disagreeable, terebinthinate taste, which may be prevented by mixing it, while fresh, with 5 per cent. of alcohol, and decanting the Oil after it has become clear from the sediment.

Preparations: Elixir Aurantii. Spiritus Aurantii. Spiritus Myrciæ.

OLEUM AURANTII FLORUM.

OIL OF ORANGE FLOWERS.

[OIL OF NEROLI.]

A volatile oil distilled from fresh Orange Flowers.

A yellowish or brownish, thin liquid, having a very fragrant odor of orange flowers, an aromatic, somewhat bitter taste, and a neutral reaction. Sp. gr. 0.850 to 0.890. It is soluble in an equal weight of alcohol. If a little alcohol be poured on the surface of the Oil and the mixture gently undulated, a bright, violet fluorescence will be observed.

Preparation: Spiritus Odoratus.

OLEUM BERGAMII.

OIL OF BERGAMOT.

A volatile oil, extracted by mechanical means from the rind of the fresh fruit of *Citrus Bergamia*, var. *vulgaris* Risso et Poiteau (Nat. Ord., *Aurantiaceæ*).

A greenish or greenish-yellow, thin liquid, of a peculiar, very fragrant odor, an aromatic, bitter taste, and a slightly acid reaction. Sp. gr. 0.860 to 0.890. It is soluble, in all proportions, in alcohol and in glacial acetic acid.

Preparation: Spiritus Odoratus.

OLEUM CAJUPUTI.

OIL OF CAJUPUT.

A volatile oil distilled from the leaves of *Melaleuca Cajuputi* Roxburgh (Nat. Ord., *Myrtaceæ*).

A light, thin, bluish-green, or, after rectification, colorless liquid, of a peculiar, fragrant, somewhat camphoraceous odor, an aromatic, bitterish taste and a neutral reaction. Freely soluble in alcohol. Sp. gr. about 0.920. On shaking 5 C.c. of the Oil with 5 C.c. of water containing a drop of diluted hydrochloric acid, the Oil loses its green tint and becomes nearly colorless.

OLEUM CARI.

OIL OF CARAWAY.

A volatile oil distilled from Caraway.

A colorless or pale yellow, thin liquid, having the characteristic, aromatic odor of caraway, a mild, spicy taste, and a neutral reaction. Sp. gr. about 0.920. It is soluble in an equal weight of alcohol.

Preparation: Spiritus Juniperi Compositus.

OLEUM CARYOPHYLLI.

OIL OF CLOVES.

A volatile oil distilled from Cloves.

A pale yellow, thin liquid, becoming darker and thicker by age and exposure to air, having a strongly aromatic odor of cloves, a pungent and spicy taste, and a slightly acid reaction. Sp. gr. about 1.050. It is very soluble in alcohol. With an equal volume of a concentrated solution of potassa it forms a semi-solid mass.

OLEUM CHENOPODII.

OIL OF CHENOPODIUM.

[OIL OF AMERICAN WORMSEED.]

A volatile oil distilled from Chenopodium.

A thin, colorless or yellowish liquid, of a peculiar, aromatic odor, a pungent and bitterish taste, and a neutral reaction. Sp. gr. about 0.920, increasing by age. It is readily soluble in alcohol.

OLEUM CINNAMOMI.

OIL OF CINNAMON.

A volatile oil distilled from Cinnamon.

Oil of Ceylon Cinnamon is a pale yellow liquid, becoming darker and thicker by age and exposure to air, having the characteristic odor of cinnamon, a sweetish, burning, and spicy taste, and a slightly acid reaction. Sp. gr. about 1.040. It is readily soluble in alcohol. When cooled to —10 C. (14 F.), it remains clear, but at a lower temperature a solid portion separates from it.

Oil of Chinese Cinnamon (Oil of Cassia), has the same properties, except that its sp. gr. is about 1.060, and its odor and taste are not quite so agreeable.

Preparations: Aqua Cinnamomi. Spiritus Cinnamomi.

OLEUM COPAIBÆ.

OIL OF COPAIBA.

A volatile oil distilled from Copaiba.

A colorless or pale yellowish liquid, having the characteristic odor of copaiba, a pungent, bitterish taste, and a neutral reaction. Sp. gr. about 0.890. It is soluble in an equal weight of alcohol.

OLEUM CORIANDRI.

OIL OF CORIANDER.

A volatile oil distilled from Coriander.

A colorless, or yellowish liquid, having the characteristic, aromatic odor of coriander, a warm, spicy taste, and a neutral reaction. Sp. gr. about 0.870. It is readily soluble in alcohol.

OLEUM CUBEBÆ.

OIL OF CUBEB.

A volatile oil distilled from Cubeb.

A colorless, or pale greenish, or yellowish liquid, having the characteristic odor of cubeb, a warm, camphoraceous, aromatic taste, and a neutral reaction. Sp. gr. about 0.920. It is soluble in an equal weight of alcohol.

OLEUM ERIGERONTIS.

OIL OF ERIGERON.

[OIL OF FLEABANE.]

A volatile oil distilled from the fresh, flowering herb of *Erigeron canadense* Linné (Nat. Ord., *Compositæ*).

A pale yellow liquid, becoming darker and thicker by age and exposure to air; having a peculiar, aromatic, persistent odor, an aromatic, slightly pungent taste, and a neutral reaction. Sp. gr. about 0.850. It is readily soluble in alcohol.

OLEUM EUCALYPTI.

OIL OF EUCALYPTUS.

A volatile oil distilled from the fresh leaves of *Eucalyptus globulus* or *Eucalyptus amygdalina* Labillardière, and some other species of *Eucalyptus* (Nat. Ord., *Myrtaceæ*).

A colorless, or very pale yellowish liquid, having a characteristic, aromatic odor, a pungent, spicy, and cooling taste, and a neutral reaction. Sp. gr. about 0.900. It is soluble in an equal weight of alcohol.

OLEUM FŒNICULI.

OIL OF FENNEL.

A volatile oil distilled from Fennel.

A colorless or yellowish liquid, having the characteristic, aromatic odor of fennel, a sweetish, mildly warm taste, and a neutral reaction. Sp. gr. not less than 0.960. Between 5° and 10° C. (41° and 50° F.) it solidifies to a crystalline mass, which does not resume fluidity until the temperature rises to about 17° C. (62.6° F.). It is soluble in an equal weight of alcohol.

Preparations: Aqua Fœniculi. Spiritus Juniperi Compositus.

OLEUM GAULTHERIÆ.

OIL OF GAULTHERIA.

[Oil of Wintergreen.]

A volatile oil distilled from Gaultheria.

A colorless, yellow or reddish liquid, of a peculiar, strong, and aromatic odor, a sweetish, warm, and aromatic taste, and a slightly acid reaction. Sp. gr. about 1.180. It is readily soluble in alcohol.

When heated to about 80° C. (176° F.) the Oil should not yield a colorless distillate having the characteristics of chloroform or of alcohol. On mixing 5 drops of the Oil with 5 drops of nitric acid, the mixture should not acquire a deep red color, and should not solidify to a dark red, resinous mass (abs. of oil of sassafras).

Preparation : Spiritus Gaultheriæ.

OLEUM GOSSYPII SEMINIS.

COTTON SEED OIL.

A fixed oil expressed from the seed of *Gossypium herbaceum* Linné, and of other species of *Gossypium* (Nat. Ord., *Malvaceæ*), and subsequently purified.

A bright, pale yellow, oily liquid, odorless, having a bland, nut-like taste, and a neutral reaction. Sp. gr. 0.920 to 0.930. It is only slightly soluble in alcohol, but readily so in ether. When cooled to near 2° C. (35.6° F.), it begins to congeal. Concentrated sulphuric acid instantly renders it dark reddish-brown.

Preparations : Linimentum Ammoniæ. Linimentum Calcis. Linimentum Camphoræ. Linimentum Plumbi Subacetatis.

OLEUM HEDEOMÆ.

OIL OF HEDEOMA.

[Oil of Pennyroyal.]

A volatile oil distilled from Hedeoma.

A colorless or yellowish liquid, of a pungent, mint-like odor and taste, and a neutral reaction. Sp. gr. about 0.940. It is readily soluble in alcohol.

OLEUM JUNIPERI.

OIL OF JUNIPER.

A volatile oil distilled from Juniper.

A colorless or faintly greenish-yellow liquid, becoming darker and thicker by age and exposure to air; having the characteristic odor of juniper, a warm, aromatic, somewhat terebinthinate and sweetish taste, and a neutral reaction. Sp. gr. about 0.870. It is soluble in about 12 parts of alcohol, forming a turbid liquid.

Preparations : Spiritus Juniperi. Spiritus Juniperi Compositus.

OLEUM LAVANDULÆ.

OIL OF LAVENDER.

A volatile oil distilled from the flowering tops or the whole herb of *Lavandula vera* De Candolle (Nat. Ord., *Labiatæ*).

A colorless, or yellowish, or greenish-yellow liquid, having the aromatic odor of lavender, a pungent and bitterish taste, and a neutral reaction while fresh. Sp. gr. about 0.890. It is readily soluble in alcohol, and in acetic acid of 90 or more per cent.

Preparation: Tinctura Lavandulæ Composita.

OLEUM LAVANDULÆ FLORUM.

OIL OF LAVENDER FLOWERS.

A volatile oil distilled from fresh Lavender.

A colorless or yellowish liquid, having the fragrant odor of lavender flowers, a pungent and bitterish taste, and a neutral reaction while fresh. Sp. gr. about 0.890. It is readily soluble in alcohol and in acetic acid of 90 or more per cent.

When heated to about 80° C. (176° F.), it should not yield a colorless distillate having the characteristics of alcohol.

Preparations: Spiritus Lavandulæ. Spiritus Odoratus.

OLEUM LIMONIS.

OIL OF LEMON.

A volatile oil, extracted by mechanical means from fresh Lemon Peel.

A pale yellow liquid, having the fragrant odor of lemon, an aromatic, somewhat bitterish taste, and a neutral reaction. Sp. gr. about 0.850. Soluble in 2 parts of alcohol, and, in all proportions, in absolute alcohol or disulphide of carbon.

By keeping, the Oil becomes thicker and acquires a disagreeable, terebinthinate taste, which may be prevented by mixing it, while fresh, with 5 per cent. of alcohol, and decanting the Oil after it has become clear from the sediment.

Preparations: Spiritus Limonis. Spiritus Odoratus.

OLEUM LINI.

OIL OF FLAXSEED.

[LINSEED OIL.]

A fixed oil expressed from Flaxseed without the use of heat.

A yellowish or yellow, oily liquid, having a slight, peculiar odor, a bland taste, and a neutral reaction. When exposed to the air, it gradually thickens, acquires a strong odor and taste, and finally solidifies. Sp. gr. about 0.936. It is soluble in 5 parts of absolute alcohol and in 1.5 parts of ether. It does not congeal above —20° C. (—4° F.).

OLEUM MENTHÆ PIPERITÆ.

OIL OF PEPPERMINT.

A volatile oil distilled from Peppermint.

A colorless, or yellowish, or greenish-yellow liquid, becoming darker and thicker by age and exposure to air, having the characteristic, strong odor of peppermint, a strongly aromatic taste, followed by a sensation of cold when air is drawn into the mouth, and a neutral reaction. Sp. gr. about 0.900. It is soluble in an equal weight of alcohol.

Preparations: Aqua Menthæ Piperitæ. Spiritus Menthæ Piperitæ. Trochisci Menthæ Piperitæ.

OLEUM MENTHÆ VIRIDIS.

OIL OF SPEARMINT.

A volatile oil distilled from Spearmint.

A colorless, or yellowish, or greenish-yellow liquid, becoming darker and thicker by age and exposure to air, having the characteristic, strong odor of spearmint, a hot, aromatic taste, and a neutral reaction. Sp. gr. about 0.900. It is soluble in an equal weight of alcohol.

Preparations: Aqua Menthæ Viridis. Spiritus Menthæ Viridis.

OLEUM MORRHUÆ.

COD LIVER OIL.

A fixed oil obtained from the fresh livers of *Gadus Morrhua* Linné, or of other species of *Gadus* (Class, *Pisces;* Order, *Teleostia;* Fam., *Gadida*).

A colorless or pale yellow, thin, oily liquid, of a slightly fishy odor, a bland, slightly fishy taste, and a faintly acid reaction. Sp. gr. 0.920 to 0.925. It is scarcely soluble in alcohol, but readily soluble in ether; also in 2.5 parts of acetic ether. When cooled to near 0° C. (32° F.), a white granular matter separates. On the addition of sulphuric acid, the Oil acquires a violet color, soon changing to brownish-red; and if 1 drop of the Oil be dissolved in 20 drops of disulphide of carbon, and the solution shaken with 1 drop of sulphuric acid, it will acquire a violet-blue tint, rapidly changing to rose-red and brownish-yellow. With nitric acid the Oil yields a purple color, changing to brown.

OLEUM MYRCIÆ.

OIL OF MYRCIA.

[OIL OF BAY.]

A volatile oil distilled from the leaves of *Myrcia acris* De Candolle (Nat. Ord., *Myrtaceæ*).

A brownish or dark brown liquid, of an aromatic, somewhat clove-like odor, a pungent, spicy taste, and a slightly acid reaction. Sp. gr. about 1.040. Soluble in an equal weight of alcohol. With an equal volume of a concentrated solution of potassa it forms a semi-solid mass.

Preparation: Spiritus Myrciæ.

OLEUM MYRISTICÆ.

OIL OF NUTMEG.

A volatile oil distilled from Nutmeg.

A colorless or pale yellowish liquid, having the characteristic odor of nutmeg, a hot, spicy taste, and a neutral reaction. Sp. gr. about 0.930. It is readily soluble in alcohol.

Preparation: Spiritus Myristicæ.

OLEUM OLIVÆ.

OLIVE OIL.

A fixed oil expressed from the ripe fruit of *Olea europæa* Linné (Nat. Ord., *Oleaceæ*).

A pale yellow, or light greenish-yellow, oily liquid, almost devoid of odor, having a nutty, oleaginous taste with a faintly acrid after-taste, and a neutral reaction. Sp. gr. 0.915 to 0.918. Sparingly soluble in alcohol, but readily soluble in ether. When cooled to about 10° C. (50° F.), it begins to be somewhat cloudy from the separation of crystalline particles, and, at about 5° C. (41° F.), it begins to deposit a white, granular sediment; below 2° C. (35.6° F.), it forms a whitish, granular mass. If 12 parts of the Oil be shaken frequently, during two hours, with 1 part of a freshly prepared solution of 6 Gm. of mercury in 7.5 Gm. of nitric acid (sp. gr. 1.420), a perfectly solid mass of a pale straw color will result.

If 1 Gm. of Olive Oil be agitated, in a test-tube, with 2 Gm. of a cold mixture prepared from equal volumes of strong sulphuric acid and of nitric acid of sp. gr. 1.185, and the mixture be set aside for half an hour, the supernatant, oily layer should not have a darker tint than yellowish; nor should a green or red layer separate on standing, if 1 Gm. of the Oil be shaken for a few seconds with 1 Gm. of a cold mixture of sulphuric acid (sp. gr. 1.830) and nitric acid (sp. gr. 1.250), and 1 Gm. of disulphide of carbon; and if 5 drops of the Oil are let fall upon a thin layer of sulphuric acid in a flat-bottomed capsule, no brown-red or dark brown zone should be developed, within three minutes, at the line of contact of the two liquids (abs. of appreciable quantities of other fixed oils of similar physical properties).

Preparations: Emplastrum Plumbi. Unguentum Diachylon.

OLEUM PHOSPHORATUM.

PHOSPHORATED OIL.

Phosphorus, *one part*	1
Stronger Ether, *nine parts*	9
Expressed Oil of Almond, *a sufficient quantity,*	
To make *one hundred parts*	100

Introduce *a sufficient quantity* of Expressed Oil of Almond into a flask, heat it, on a sand-bath, to 250° C. (482° F.), and keep it at that temperature for fifteen minutes. Then allow it to cool, and filter it. Put *ninety*

(90) *parts* of the filtered Oil, together with the Phosphorus, previously well dried by blotting paper, into a dry bottle capable of holding somewhat more than *one hundred* (100) *parts*, insert the stopper and heat the bottle in a water-bath until the Phosphorus melts, agitate it until the Phosphorus is dissolved, allow it to cool, and add the Ether. Lastly, transfer the solution to small, glass-stoppered vials, which should be completely filled, and kept in a cool and dark place.

OLEUM PICIS LIQUIDÆ.

OIL OF TAR.

A volatile oil distilled from Tar.

An almost colorless liquid when freshly distilled, but soon acquiring a dark, reddish-brown color, having a strong, tarry odor and taste, and an acid reaction. Sp. gr. about 0.970. It is readily soluble in alcohol.

OLEUM PIMENTÆ.

OIL OF PIMENTA.

[OIL OF ALLSPICE.]

A volatile oil distilled from Pimenta.

A colorless or pale yellow liquid, becoming darker and thicker by age and exposure to air, having a strong, aromatic, clove-like odor, a pungent, spicy taste, and a slightly acid reaction. Sp. gr. about 1.040. It is readily soluble in alcohol. With an equal volume of a concentrated solution of potassa it forms a semi-solid mass.

Preparation: Spiritus Myrciæ.

OLEUM RICINI.

CASTOR OIL.

A fixed oil expressed from the seed of *Ricinus communis* Linné (Nat. Ord., *Euphorbiaceæ*).

An almost colorless, transparent, viscid liquid, of a faint, mild odor, a bland, afterward slightly acrid and generally offensive taste, and a neutral reaction. Sp. gr. 0.950 to 0.970. It is soluble in an equal weight of alcohol, and, in all proportions, in absolute alcohol, or glacial acetic acid. When cooled, it becomes thicker, generally depositing white granules, and at about —18° C. (0.4° F.), it congeals to a yellowish mass.

OLEUM ROSÆ.

OIL OF ROSE.

A volatile oil distilled from the fresh flowers of *Rosa damascena* Miller (Nat. Ord., *Rosaceæ, Roseæ*).

A pale yellowish, transparent liquid, having a strong odor of rose, a sweetish, rather mild taste, and a slightly acid reaction. Sp. gr. about 0.860. It is but slightly soluble in alcohol. When slowly cooled to near 10° C. (50° F.), the Oil becomes a transparent solid, interspersed with numerous slender, shining, iridescent, scale-like crystals. When rapidly cooled to 12.5° C. (54.5° F.), it congeals to a solid mass of light, feathery, shining scales or plates.

OLEUM ROSMARINI.

OIL OF ROSEMARY.

A volatile oil distilled from Rosemary.

A colorless or yellowish liquid, having the characteristic, pungent odor of rosemary, a warm, somewhat camphoraceous taste, and a neutral or faintly acid reaction. Sp. gr. about 0.900. It is readily soluble in alcohol.

Preparations: Linimentum Saponis. Spiritus Odoratus. Tinctura Lavandulæ Composita.

OLEUM RUTÆ.

OIL OF RUE.

A volatile oil distilled from *Ruta graveolens* Linné (Nat. Ord., *Rutaceæ, Ruteæ*).

A colorless or greenish-yellow liquid, of a characteristic, aromatic odor, a pungent, bitterish taste, and a neutral reaction. Sp. gr. about 0.880. It is soluble in an equal weight of alcohol.

OLEUM SABINÆ.

OIL OF SAVINE.

A volatile oil distilled from Savine.

A colorless or yellowish liquid, becoming darker and thicker by age and exposure to air, having a peculiar, terebinthinate odor, a pungent, bitterish, and camphoraceous taste, and a neutral reaction. Sp. gr. about 0.910. It is soluble in an equal weight of alcohol.

OLEUM SANTALI.

OIL OF SANTAL.

[Oil of Sandal Wood.]

A volatile oil distilled from the wood of *Santalum album* Linné (Nat. Ord., *Santalaceæ*).

A pale yellowish or yellow liquid, of a peculiar, strongly aromatic odor, a pungent and spicy taste, and a slightly acid reaction. Sp. gr. about 0.945. It is readily soluble in alcohol.

OLEUM SASSAFRAS.

OIL OF SASSAFRAS.

A volatile oil distilled from Sassafras.

A colorless or yellowish liquid, becoming darker and somewhat thicker by age and exposure to air, having the characteristic odor of sassafras, a warm, aromatic taste, and a neutral reaction. Sp. gr. about 1.090. It is readily soluble in alcohol. When treated with cold nitric acid, it becomes dark red, and is finally converted into a red resin.

OLEUM SESAMI.

OIL OF SESAMUM.

[Benné Oil.]

A fixed oil expressed from the seed of *Sesamum indicum* Linné (Nat. Ord., *Pedaliaceæ*).

A yellowish or yellow, oily liquid, inodorous or nearly so, having a bland, nut-like taste, and a neutral reaction. Sp. gr. 0.914 to 0.923. When cooled to near 5° C. (23° F.), it congeals to a yellowish-white mass. Concentrated sulphuric acid converts it into a brownish-red jelly. If 10 C.c. of the Oil be agitated with 3 drops of a cold mixture of equal volumes of nitric and sulphuric acids, the Oil will acquire a green color, soon changing to brownish-red.

OLEUM SINAPIS VOLATILE.

VOLATILE OIL OF MUSTARD.

A volatile oil obtained from Black Mustard by maceration with water, and subsequent distillation.

A colorless or pale yellow liquid, having a very pungent and acrid odor and taste, and a neutral reaction. Sp. gr. 1.017 to 1.021. It boils at 148° C. (298.4° F.). It is freely soluble in alcohol and in ether. If 1 part of the Oil is gradually added to 3 parts of sulphuric acid (keeping the mixture cool), the odor of mustard disappears, sulphurous acid vapor is given off, and the mass becomes thick and only slightly darker.

On heating the Oil to 50° C. (122° F.), in a flask connected with a well-cooled condenser, no liquid having the odor and characteristics of disulphide of carbon should pass over.

Preparation: Linimentum Sinapis Compositum.

OLEUM SUCCINI.

OIL OF AMBER.

A volatile oil obtained by the destructive distillation of Amber, and purified by subsequent rectification.

A colorless or pale yellow, thin liquid, becoming darker and thicker by age and exposure to air, having an empyreumatic, balsamic odor, a warm, acrid taste, and a neutral or faintly acid reaction. Sp. gr. about 0.920. It is readily soluble in alcohol. When mixed with fuming nitric acid, it acquires a red color, and, after some time, is almost wholly converted into a brown, resinous mass of a peculiar, musk-like odor.

OLEUM TEREBINTHINÆ.

OIL OF TURPENTINE.

A volatile oil distilled from Turpentine.

A thin, colorless liquid, of a characteristic odor and taste becoming stronger and less pleasant by age and exposure to air, and of a neutral or faintly acid reaction. Sp. gr. 0.855 to 0.870. It is soluble in 6 parts of alcohol. Bromine and powdered iodine act violently upon it. When brought in contact with a mixture of nitric and sulphuric acids, it takes fire.

Preparations: Linimentum Cantharidis. Linimentum Terebinthinæ.

OLEUM THEOBROMÆ.

OIL OF THEOBROMA.

[Butter of Cacao.]

A fixed oil expressed from the seed of *Theobroma Cacao* Linné (Nat. Ord., *Sterculiaceæ*).

A yellowish-white solid, having a faint, agreeable odor, a bland, chocolate-like taste, and a neutral reaction. It melts between 30 and 35° C. (86 to 95 F.). If 2 parts of Oil of Theobroma be dissolved in 4 parts of ether, in a test-tube, by immersing the tube in water of 17° C. (63 F.), and if this be afterward plunged into water of 0° C. (32° F.), the mixture should not become turbid, nor separate a granular deposit in less than three minutes; and if the mixture, after congealing, be exposed to a temperature of 15 C. (59° F.), it should gradually become entirely clear (abs. of paraffin, wax, stearin, tallow, etc.).

OLEUM THYMI.

OIL OF THYME.

A volatile oil distilled from *Thymus vulgaris* Linné (Nat. Ord., *Labiatæ*).

A colorless or pale yellow, thin liquid, becoming darker and thicker by age and exposure to air, having a strong odor of thyme, a warm, pungent, and afterward cooling taste, and a neutral reaction. Sp. gr. about 0.880. It is readily soluble in alcohol.

OLEUM TIGLII.

CROTON OIL.

A fixed oil expressed from the seed of *Croton Tiglium* Linné (Nat. Ord., *Euphorbiaceæ*).

A pale yellow or brownish-yellow, somewhat viscid and slightly fluorescent liquid, having a slight, fatty odor, a mild, oily, afterward acrid, burning taste, and a slightly acid reaction. When applied to the skin, it produces rubefaction or a pustular eruption. Sp. gr. 0.940 to 0.955. When fresh, it is soluble in about 60 parts of alcohol, the solubility and therapeutic activity increasing by age. It is freely soluble in ether, chloroform, or disulphide of carbon.

OLEUM VALERIANÆ.

OIL OF VALERIAN.

A volatile oil distilled from Valerian.

A greenish or yellowish, thin liquid, becoming darker and thicker by age and exposure to air, having the characteristic odor of valerian, an aromatic, somewhat camphoraceous taste, and a slightly acid reaction. Sp. gr. about 0.950. It is readily soluble in alcohol.

OPII PULVIS.

POWDERED OPIUM.

Opium, dried at a temperature not exceeding 85° C. (185° F.), and reduced to a moderately fine (No. 50) powder.

Powdered Opium, for pharmaceutical or medicinal uses, should contain not less than 12, nor more than 16 per cent. of morphine, when assayed by the process given under Opium. Any Powdered Opium of a higher percentage may be brought within these limits by admixture with Powdered Opium of a lower percentage, in proper proportions.

Preparations: Acetum Opii. Opium Denarcotisatum. Pilulæ Opii. Pulvis Ipecacuanhæ et Opii. Tinctura Opii. Tinctura Opii Camphorata. Tinctura Opii Deodorata. Vinum Opii.

OPIUM.

OPIUM.

The concrete, milky exudation, obtained in Asia Minor by incising the unripe capsules of *Papaver somniferum* Linné (Nat. Ord., *Papaveraceæ*).

Opium, in its normal, moist condition, should yield not less than 9 per cent. of morphine, when assayed by the process given below.

In irregular or sub-globular cakes, with the remains of poppy leaves, and fruits of a species of Rumex adhering to the surface; plastic or of a harder consistence; chestnut-brown or darker, and somewhat shining; internally showing some tears and fragments of vegetable tissue. It has a sharp, narcotic odor and a bitter taste.

On exhausting 100 parts of Opium, previously dried at a temperature of 105° C. (221° F.), with cold water, and evaporating the solution to dryness, an extract is obtained which should weigh between 55 and 60 parts.

ASSAY OF OPIUM.

Opium, in any condition to be valued, *seven grammes*	7
Lime, freshly slaked, *three grammes*	3
Chloride of Ammonium, *three grammes*	3

Alcohol,
Stronger Ether,
Distilled Water, each *a sufficient quantity*.

Triturate together the Opium, Lime, and 20 C.c. of Distilled Water, in a mortar, until a uniform mixture results; then add 50 C.c. of Distilled Water, and stir occasionally, during half an hour. Filter the mixture through a plaited filter, three to three and one-half inches (75 to 90 millimeters) in diameter, into a wide-mouthed bottle or stoppered flask (having the capacity of about 120 C.c. and marked at exactly 50 C.c.), until the filtrate reaches this mark. To the filtered liquid (representing 5 grammes of Opium), add 5 C.c. of Alcohol and 25 C.c. of Stronger Ether, and shake the mixture; then add the Chloride of Ammonium, shake well and frequently during half an hour, and set it aside for twelve hours. Counterbalance two small filters, place one within the other in a small funnel, and decant the ethereal layer as completely as practicable upon the filter. Add 10 C.c. of Stronger Ether to the contents of the bottle and rotate it; again decant the ethereal layer upon the filter, and afterward wash the latter with 5 C.c. of Stronger Ether, added slowly and in portions. Now let the filter dry in the air, and pour upon it the liquid in the bottle, in portions, in such a way as to transfer the greater portion of the crystals to the filter. Wash the bottle, and transfer the remaining crystals to the filter, with several small portions of Distilled Water, using not much more than 10 C.c. in all, and distributing the portions evenly upon the filter. Allow the filter to drain, and dry it, first by pressing it between sheets of bibulous paper, and afterward, at a temperature between 55° and 60° C. (131° to 140° F.). Weigh the crystals in the inner filter, counterbalancing by the outer filter. The weight of the crystals in grammes, multiplied by *twenty* (20), equals the percentage of morphine in the Opium taken.

Preparation: Extractum Opii.

OPIUM DENARCOTISATUM.

DENARCOTIZED OPIUM.

Powdered Opium, containing fourteen (14) per cent. of morphine, *one hundred parts*	100
Stronger Ether, *one thousand parts*	1000
Sugar of Milk, in fine powder, *a sufficient quantity*,	
To make *one hundred parts*	100

Macerate the Powdered Opium with *five hundred* (500) *parts* of Stronger Ether, in a well-closed flask, for twenty-four hours, agitating from time to time. Pour off the clear, ethereal solution, and repeat the maceration with two other portions of the Ether, each of *two hundred and fifty* (250) *parts*, first for twelve hours, and the last time for two hours. Collect the residue in a weighed dish, dry it, first by a very gentle heat, and, finally, at a temperature not above 85° C. (185° F.), and mix it thoroughly, by trituration, with enough Sugar of Milk to make the product weigh *one hundred* (100) *parts*.

Instead of taking *one hundred* (100) *parts* of Powdered Opium, containing *fourteen* (14) *per cent.* of morphine, a proportionately smaller quantity of Powdered Opium of any higher percentage of morphine may be taken. The proper quantity, in parts by weight, for the above formula, is ascertained by dividing 1400 by the percentage of morphine in the Powdered Opium selected.

Denarcotised Opium, when assayed by the process mentioned under Opium, should yield 14 per cent. of morphine.

ORIGANUM.

ORIGANUM.

[WILD MARJORAM.]

Origanum vulgare Linné (Nat. Ord., *Labiatæ*).

Stem branched above, often purplish, leaves opposite, petiolate, about an inch (25 millimeters) long, roundish-ovate, obtuse, nearly entire, pellucid-punctate, hairy beneath; flowers in corymbs, with reddish bracts, a five-toothed calyx, a somewhat two-lipped, pale purple corolla, and four exserted stamens; aromatic, pungent, and bitterish.

Preparation: Vinum Aromaticum.

PAREIRA.

PAREIRA.

[PAREIRA BRAVA.]

The root of *Chondodendron tomentosum* Ruiz et Pavon (Nat. Ord., *Menispermaceæ*).

In sub-cylindrical, somewhat tortuous pieces, about four to six inches (10 to 15 centimeters) long, varying in thickness from three-quarters of an inch to four inches (2 to 10 centimeters); externally dark brownish-gray, with transverse ridges and fissures and longitudinal furrows; internally pale brown, the fresh cut having a waxy lustre; bark thin; wood porous, in two or more somewhat irregularly concentric circles, and with distinct medullary rays; inodorous and bitter.

Pieces having a bright yellow color, or with a grayish, hard, nearly tasteless wood, should be rejected.

Preparation: Extractum Pareiræ Fluidum.

PEPO.

PUMPKIN SEED.

The seed of *Cucurbita Pepo* Linné (Nat. Ord., *Cucurbitaceæ*).

About three-quarters of an inch (2 centimeters) long, broadly-ovate, flat, white or whitish, nearly smooth, with a shallow groove parallel to the edge; containing a short, conical radicle and two flat cotyledons; inodorous, bland, and oily.

PEPSINUM SACCHARATUM.

SACCHARATED PEPSIN.

Pepsin, the digestive principle of the gastric juice, obtained from the mucous membrane of the stomach of the hog, and mixed with powdered Sugar of Milk.

Saccharated Pepsin is a white powder of a slight but not disagreeable odor and taste, and a slightly acid reaction. It is not completely soluble in water, leaving floccules of pepsin floating in the solution, which, however, dissolve on the addition of a small quantity of hydrochloric acid. Strong turbidity of the acidulated solution indicates the presence of mucus, which also imparts to the Saccharated Pepsin a disagreeable odor and taste, and will eventually impart to it an ammoniacal odor.

1 part of Saccharated Pepsin, dissolved in 500 parts of water acidulated with 7.5 parts of hydrochloric acid, should digest at least 50 parts of hard-boiled egg-albumen in five or six hours at a temperature of 38° to 40° C. (100° to 104° F.).

Preparation: Liquor Pepsini.

PETROLATUM.

PETROLATUM.

[PETROLEUM OINTMENT.]

A semi-solid substance, consisting of hydrocarbons, chiefly of the marsh-gas series [$C_{16}H_{34}$; etc. — $C_{32}H_{34}$; *etc.*], obtained by distilling off the lighter and more volatile portions from American Petroleum, and purifying the residue. Melting point about 40° C. to 51° C. (104° F. to 125° F.), the first constituting the softer, and the second the firmer variety.

When Petrolatum is prescribed or ordered, without specifying its melting point, the low-melting variety, which liquefies at about 40° C. (104° F.), is to be dispensed.

A yellowish or yellow, fat-like mass, transparent in thin layers, more or less fluorescent, especially when melted, completely amorphous, tasteless and odorless, or giving off, at most, only a faint petroleum odor when heated, and having a neutral reaction. When gently heated, until the mass is almost entirely melted, the liquid portion has a sp. gr. varying from 0.835 to 0.860. It is insoluble in water; scarcely soluble in alcohol, or in cold absolute alcohol; but soluble in 64 parts of boiling absolute alcohol, and readily soluble in ether, chloroform, disulphide of carbon, oil of turpentine, benzin, benzol, and in fixed or volatile oils. When heated on platinum foil, it is completely volatilized without emitting the acrid vapors of burning fat or resin.

If 5 Gm. of Petrolatum be digested, for half an hour, with 5 Gm. of soda and 25 Gm. of water, the aqueous layer separated, and supersaturated with diluted sulphuric acid, no oily substance should separate (abs. of fixed oils or fats of vegetable or animal origin, or of resin). Liquefied Petrolatum agitated with sulphuric acid of sp. gr. 1.540, should not acquire a dark color within two hours (abs. of readily carbonized organic impurities).

PHOSPHORUS.

PHOSPHORUS.

P; 31. — *P*; 31.

Phosphorus should be carefully kept under water, in a secure and moderately cool place, protected from light.

A translucent, nearly colorless solid, of a waxy lustre, having, at the ordinary temperature, about the consistence of beeswax. It has a distinctive and disagreeable odor and taste, melts at 44° C. (111.2° F.), and has the sp. gr. 1.83 at 10° C. (50° F.). It is insoluble in water, soluble in 350 parts of absolute alcohol at 15° C.

(59° F.), in 240 parts of boiling absolute alcohol, in 80 parts of absolute ether, in about 50 parts of any fatty oil, and very abundantly soluble in disulphide of carbon, the latter yielding a solution which must be handled with the greatest care to prevent danger from fire. When exposed to the air, it emits white fumes, which are luminous in the dark, and have an odor somewhat resembling that of garlic. On longer exposure to air, it takes fire spontaneously.

If 3 Gm. of Phosphorus are digested with 24 Gm. of nitric acid and 18 Gm. of distilled water until it is completely dissolved, the solution evaporated until no more nitrous vapors are given off, then diluted with distilled water, so as to weigh about 36 Gm., and hydrosulphuric acid gas be passed through the larger portion of the liquid, heated for half an hour to about 70° C. (158° F.) and afterward until the liquid cools, there should not appear more than a trifling quantity of a lemon-yellow precipitate after the lapse of twenty-four hours (limit of arsenic). On adding test-solution of chloride of barium to the remainder of the liquid, not more than a slight opalescence should make its appearance (limit of sulphur).

Preparations: Acidum Phosphoricum. Oleum Phosphoratum. Pilulæ Phosphori.

PHYSOSTIGMA.

PHYSOSTIGMA.

[CALABAR BEAN.]

The seed of *Physostigma venenosum* Balfour (Nat. Ord., *Leguminosæ, Papilionaceæ*).

About one inch (25 millimeters) long, and three-fifths of an inch (15 millimeters) broad, oblong, and somewhat reniform; testa granular, chocolate-brown, with a broad, black groove extending over the entire length of the convex edge; embryo with a short, curved radicle, and two large, white, concavo-convex cotyledons; inodorous; taste bean-like. On moistening the embryo with solution of potassa, it becomes pale yellow.

Preparations: Extractum Physostigmatis. Tinctura Physostigmatis.

PHYSOSTIGMINÆ SALICYLAS.

SALICYLATE OF PHYSOSTIGMINE.

$C_{15}H_{21}N_3O_2C_7H_6O_3$; 413. — $C_{30}H_{21}N_3O_4.C_{14}H_6O_6$; 413.

The salicylate of an alkaloid prepared from Physostigma. It should be kept in small, dark amber-colored, well-stopped vials, in a dark place.

Colorless, shining, acicular, or short, columnar crystals, gradually turning reddish when long exposed to air and light, odorless, having a bitter taste, and a neutral reaction. Soluble in 130 parts of water, and in 12 parts of alcohol at 15° C. (59° F.); in 30 parts of boiling water, and very soluble in boiling alcohol. When heated on platinum foil, the salt is completely dissipated. The aqueous or alcoholic solution of the salt, when exposed to light for a short time, turns reddish. On adding bicarbonate of sodium to the aqueous solution, shaking with ether and evaporating the ethereal solution, an amorphous residue is obtained, having an alkaline reaction, and assuming, when dissolved for some time in water, a reddish color, which disappears on the addition of sulphurous acid, but returns again as the latter evaporates. On concentrating the aqueous solution which has been shaken with ether, to a small bulk, and supersaturating with sulphuric acid, a bulky, white precipitate is obtained which responds to the reactions of salicylic acid (see *Acidum Salicylicum*).

PHYTOLACCÆ BACCA.

PHYTOLACCA BERRY.

[POKE BERRY.]

The fruit of *Phytolacca decandra* Linné (Nat. Ord., *Phytolaccaceæ*).

A depressed-globular, dark purple, compound berry, about one-third of an inch (8 millimeters) in diameter, composed of ten carpels, each containing one lenticular, black seed; juice purplish-red; inodorous; sweet, slightly acrid.

PHYTOLACCÆ RADIX.

PHYTOLACCA ROOT.

[POKE ROOT.]

The root of *Phytolacca decandra* Linné (Nat. Ord., *Phytolaccaceæ*).

Large, conical, branched and fleshy; mostly in transverse or longitudinal slices, wrinkled, grayish, hard; fracture fibrous, the wood-bundles in several distinct, concentric circles; inodorous; sweetish, acrid.

PICROTOXINUM.

PICROTOXIN.

$C_{9}H_{10}O_{4}$; 182. — $\mathit{C_{18}H_{10}O_{8}}$; 182.

A neutral principle prepared from the seeds of *Anamirta paniculata* Colebrooke (Nat. Ord., *Menispermaceæ*).

Colorless, flexible, shining, prismatic crystals, permanent in the air, odorless, having a very bitter taste, and a neutral reaction. Soluble in 150 parts of water, and in 10 parts of alcohol at 15° C. (59° F.); in 25 parts of boiling water, and in 3 parts of boiling alcohol; also soluble in acids and in solutions of the alkalies. When heated to about 200° C. (392° F.), the crystals melt, forming a yellow liquid; when heated on platinum foil, they char and are finally completely dissipated. Concentrated sulphuric acid dissolves Picrotoxin with a golden-yellow color, which turns violet-red on the addition of a trace of bichromate of potassium. When mixed with 3 times its weight of nitrate of potassium, moistened with sulphuric acid, and then treated with strong solution of soda in excess, Picrotoxin assumes a brick-red color of short duration. The aqueous solution should remain unaffected by solutions of salts of mercury or platinum, tannic acid, iodide of mercury and potassium, or other reagents for alkaloids (abs. of and difference from alkaloids).

PILOCARPINÆ HYDROCHLORAS.

HYDROCHLORATE OF PILOCARPINE.

$C_{11}H_{16}N_{2}O_{2}.HCl$; 244.4. — $\mathit{C_{22}H_{16}N_{2}O_{4}.HCl}$; 244.4.

The hydrochlorate of an alkaloid prepared from Pilocarpus. It should be kept in small, well-stopped vials.

Minute, white crystals, deliquescent, odorless, having a faintly bitter taste, and a neutral reaction. Very soluble in water and in alcohol, but almost insoluble in ether or chloroform. When heated on platinum foil, the crystals melt, and are finally completely dissipated. With concentrated sulphuric acid, the crystals yield a yellow color, with nitric acid (sp. gr. 1.400), a faintly greenish-violet tint, with sulphuric acid and chromate of potassium, an emerald-green color. If an aqueous solution of the salt is slightly acidulated, the addition of water of ammonia produces no precipitate. Solution of soda produces a cloudiness only in a concentrated solution. The aqueous solution yields, with test-solution of nitrate of silver, a white precipitate insoluble in nitric acid, but soluble in ammonia.

PILOCARPUS.

PILOCARPUS.

[JABORANDI.]

The leaflets of *Pilocarpus pennatifolius* Lemaire (Nat. Ord., *Rutaceæ, Xanthoxyleæ*).

About four inches (10 centimeters) long, short-stalked, oval or ovate-oblong, entire and slightly revolute at the margin, obtuse and emarginate, unequal at the base; coriaceous, pellucid-punctate, mostly smooth; when bruised, slightly aromatic; somewhat pungent and bitter.

Preparation: Extractum Pilocarpi Fluidum.

PILULÆ ALOES.

PILLS OF ALOES.

	Grains.	Grammes.
Purified Aloes, in fine powder, *two hundred grains*	200	13.00
Soap, in fine powder, *two hundred grains*	200	13.00
	400	26.00
To make *one hundred pills*....	100	

Beat them together with water so as to form a mass, and divide it into *one hundred* (100) *pills*.

PILULÆ ALOES ET ASAFŒTIDÆ.

PILLS OF ALOES AND ASAFETIDA.

	Grains.	Grammes.
Purified Aloes, in fine powder, *four hundred grains*.....	400	26.00
Asafetida, *four hundred grains*	400	26.00
Soap, in fine powder, *four hundred grains*..............	400	26.00
	1200	78.00
To make *three hundred pills*....	300	

Beat them together with water so as to form a mass, and divide it into *three hundred* (300) *pills*.

PILULÆ ALOES ET FERRI.

PILLS OF ALOES AND IRON.

	Grains.	Grammes.
Purified Aloes, in fine powder, *one hundred grains*	100	6.50
Dried Sulphate of Iron, *one hundred grains*	100	6.50
Aromatic Powder, *one hundred grains*	100	6.50
Confection of Rose, *a sufficient quantity,*		
	300	19.50
To make *one hundred pills*	100	

Beat the powders together with Confection of Rose so as to form a mass, and divide it into *one hundred* (100) *pills.*

PILULÆ ALOES ET MASTICHES.

PILLS OF ALOES AND MASTIC.

	Grains.	Grammes.
Purified Aloes, in fine powder, *two hundred grains*	200	13.00
Mastic, in fine powder, *fifty grains*	50	3.25
Red Rose, in fine powder, *fifty grains*	50	3.25
	300	19.50
To make *one hundred pills*	100	

Beat them together with water so as to form a mass, and divide it into *one hundred* (100) *pills.*

PILULÆ ALOES ET MYRRHÆ.

PILLS OF ALOES AND MYRRH.

	Grains.	Grammes.
Purified Aloes, in fine powder, *two hundred grains*	200	13.00
Myrrh, in fine powder, *one hundred grains*	100	6.50
Aromatic Powder, *fifty grains*	50	3.25
Syrup, *a sufficient quantity,*		
	350	22.75
To make *one hundred pills*	100	

Beat them together so as to form a mass, and divide it into *one hundred* (100) *pills.*

PILULÆ ANTIMONII COMPOSITÆ.

COMPOUND PILLS OF ANTIMONY.

[PLUMMER'S PILLS.]

	Grains.	Grammes.
Sulphurated Antimony, *fifty grains*	50	3.25
Mild Chloride of Mercury, *fifty grains*	50	3.25
Guaiac, in fine powder, *one hundred grains*	100	6.50
Mucilage of Tragacanth, *a sufficient quantity,*		
	200	13.00
To make *one hundred pills*	100	

Mix the powders, beat them together with Mucilage of Tragacanth so as to form a mass, and divide it into *one hundred* (100) *pills.*

PILULÆ ASAFŒTIDÆ.

PILLS OF ASAFETIDA.

	Grains.	Grammes.
Asafetida, *three hundred grains*	300	19.50
Soap, in fine powder, *one hundred grains*	100	6.50
	400	26.00
To make *one hundred pills*	100	

Beat them together with water so as to form a mass, and divide it into *one hundred* (100) *pills.*

PILULÆ CATHARTICÆ COMPOSITÆ.

COMPOUND CATHARTIC PILLS.

	Grains.	Grammes.
Compound Extract of Colocynth, *one hundred and thirty grains*	130	8.40
Abstract of Jalap, *one hundred grains*	100	6.50
Mild Chloride of Mercury, *one hundred grains*	100	6.50
Gamboge, in fine powder, *twenty-five grains*	25	1.60
	355	23.00
To make *one hundred pills*	100	

Mix the powders intimately; then with water form a mass, and divide it into *one hundred* (100) *pills.*

PILULÆ FERRI COMPOSITÆ.

COMPOUND PILLS OF IRON.

	Grains.	Grammes.
Myrrh, in fine powder, *one hundred and fifty grains*	150	9.75
Carbonate of Sodium, *seventy-five grains*	75	4.85
Sulphate of Iron, *seventy-five grains*	75	4.85
Syrup, *a sufficient quantity,*		
	300	19.45
To make *one hundred pills*	100	

Rub the Myrrh, first with the Carbonate of Sodium, and afterward with the Sulphate of Iron, until they are thoroughly mixed; then beat them with Syrup so as to form a mass, and divide it into *one hundred* (100) *pills.*

PILULÆ FERRI IODIDI.

PILLS OF IODIDE OF IRON.

	Grains.	Grammes.
Reduced Iron, *sixty grains*	60	4.00
Iodine, *eighty grains*	80	5.20
Glycyrrhiza, in No. 60 powder, *fifty grains*	50	3.25
Sugar, in fine powder, *fifty grains*	50	3.25
Extract of Glycyrrhiza, in fine powder, *twelve grains*	12	0.75
Acacia, in fine powder, *twelve grains*	12	0.75
Water,		
Balsam of Tolu,		
Stronger Ether, each, *a sufficient quantity,*		
	264	17.20
To make *one hundred pills*	100	

To the Reduced Iron, contained in a porcelain capsule, add about *one hundred and twenty* (120) *grains*, or about *eight* (8) *grammes* of Water, and gradually add the Iodine, constantly triturating, until the mixture ceases to have a reddish tint. Then add the remaining powders, previously mixed, and evaporate the excess of moisture, on the water-bath, constantly stirring, until the mass has acquired a pilular consistence. Lastly, divide it into *one hundred* (100) *pills.*

Dissolve *one* (1) *part* of Balsam of Tolu in *one* (1) *part* of Stronger Ether, shake the pills with a sufficient quantity of this solution until they are uniformly coated, and put them on a plate to dry, occasionally stirring them until the drying is completed.

Keep the pills in a well-stopped bottle.

Pills of Iodide of Iron should be devoid of the smell of iodine, and distilled water, rubbed with them and filtered, should not impart more than a light blue tint to gelatinized starch (abs. of more than traces of free iodine).

PILULÆ GALBANI COMPOSITÆ.

COMPOUND PILLS OF GALBANUM.

	Grains.	Grammes.
Galbanum, *one hundred and fifty grains*	150	9.75
Myrrh, *one hundred and fifty grains*	150	9.75
Asafetida, *fifty grains*	50	3.25
Syrup, *a sufficient quantity,*		
	350	22.75
To make *one hundred pills*	100	

Beat them together so as to form a mass, and divide it into *one hundred* (100) *pills.*

PILULÆ OPII.

PILLS OF OPIUM.

	Grains.	Grammes.
Powdered Opium, *one hundred grains*	100	6.50
Soap, in fine powder, *twenty-five grains*	25	1.62
	125	8.12
To make *one hundred pills*	100	

Beat them together with water so as to form a mass, and divide it into *one hundred* (100) *pills.*

PILULÆ PHOSPHORI.

PILLS OF PHOSPHORUS.

	Grains.	Grammes.
Phosphorus, *one grain*	1	0.06
Althæa, in No. 60 powder, *eighty grains*	80	5.20
Acacia, in fine powder, *twenty grains*	20	1.30
Glycerin, *forty grains*	40	2.60
Water, *twenty grains*	20	1.30
Purified Chloroform, *fifty grains*	50	3.20
Balsam of Tolu,		
Stronger Ether, each, *a sufficient quantity,*		
To make *one hundred pills*	100	

Dissolve the Phosphorus in the Chloroform, in a test-tube. Mix the Althæa and the Acacia, in a mortar, with the pestle, add the solution of Phosphorus, then the Glycerin and the Water, and quickly form a mass, to be divided into *one hundred* (100) *pills*.

Dissolve *one* (1) *part* of Balsam of Tolu in *one* (1) *part* of Stronger Ether, shake the pills with a sufficient quantity of the solution until they are uniformly coated, and put them on a plate to dry, occasionally stirring until the drying is completed.

Keep the pills in a well-stopped bottle.

PILULÆ RHEI.

PILLS OF RHUBARB.

	Grains.	Grammes.
Rhubarb, in fine powder, *three hundred grains*	300	19.50
Soap, in fine powder, *one hundred grains*	100	6.50
	400	26.00
To make *one hundred pills*	100	

Beat them together with water so as to form a mass, and divide it into *one hundred* (100) *pills*.

PILULÆ RHEI COMPOSITÆ.

COMPOUND PILLS OF RHUBARB.

	Grains.	Grammes.
Rhubarb, in No. 60 powder, *two hundred grains*	200	13.00
Purified Aloes, in fine powder, *one hundred and fifty grains*	150	9.75
Myrrh, in fine powder, *one hundred grains*	100	6.50
Oil of Peppermint, *ten grains*	10	.65
	460	29.90
To make *one hundred pills*	100	

Beat them together with water so as to form a mass, and divide it into *one hundred* (100) *pills*.

PIMENTA.

PIMENTA.

[ALLSPICE.]

The nearly ripe fruit of *Eugenia Pimenta* De Candolle (Nat. Ord., *Myrtaceæ*).

About one-quarter of an inch (6 millimeters) in diameter, nearly globular, crowned with the short, four-parted calyx or its remnants and a short style, brownish or brownish-gray, granular and glandular, two-celled; each cell with one brown, plano-convex, roundish-reniform seed; odor and taste pungently aromatic, clove-like.

PIPER.

PEPPER.

[BLACK PEPPER.]

The unripe fruit of *Piper nigrum* Linné (Nat. Ord., *Piperaceæ*).

Globular, about one-sixth of an inch (4 millimeters) in diameter, reticulately wrinkled, brownish-black or grayish-black, internally lighter, hollow, with an undeveloped embryo; aromatic, and having a spicy, hot taste.

Preparation: Oleoresina Piperis

PIPERINA.

PIPERINE.

$C_{17}H_{19}NO_3$; 285. — $C_{34}H_{19}NO_6$; 285.

A proximate principle of feebly alkaloidal power, prepared from Pepper, and occurring also in other plants of the Nat. Ord., *Piperaceæ*.

Colorless or pale yellowish, shining, four-sided prisms, permanent in the air, odorless and almost tasteless when first put in the mouth, but on prolonged contact producing a sharp and biting sensation. It has a neutral reaction, is almost insoluble in water, but soluble in 30 parts of alcohol at 15° C. (59° F.), in 1 part of boiling alcohol, and but slightly soluble in ether. When heated to about 128° C. (about 262° F.), Piperine melts, yielding a clear, yellowish liquid, which, on cooling, congeals to a resinous mass. When heated on platinum foil. it takes fire and is consumed without residue. Concentrated sulphuric acid dissolves Piperine with a dark, blood-red color, which disappears on dilution with water. When treated with cold nitric acid, Piperine turns rapidly greenish-yellow, orange, and red, and gradually dissolves with a reddish color. On adding to this solution an excess of solution of potassa, the color is at first pale yellow, but on boiling it deepens to blood-red, while, at the same time, vapors of an alkaline reaction and of a peculiar odor (piperidine) are given off.

PIX BURGUNDICA.

BURGUNDY PITCH.

The prepared, resinous exudation of *Abies excelsa* De Candolle (Nat. Ord., *Coniferæ*).

Hard, yet gradually taking the form of the vessel in which it is kept; brittle, with a shining, conchoidal fracture, opaque or translucent, reddish-brown or grayish-brown, aromatic and somewhat empyreumatic, not bitter. It is almost entirely soluble in glacial acetic acid.

Preparations: Emplastrum Picis Burgundicæ. Emplastrum Picis cum Cantharide.

PIX CANADENSIS.

CANADA PITCH.

[HEMLOCK PITCH.]

The prepared, resinous exudation of *Abies canadensis* Michaux (Nat. Ord., *Coniferæ*).

Hard, yet gradually taking the form of the vessel in which it is kept; brittle, with a shining, conchoidal fracture; opaque or translucent, dark reddish-brown, having a weak, somewhat terebinthinate odor.

Preparation: Emplastrum Picis Canadensis.

PIX LIQUIDA.

TAR.

An empyreumatic oleoresin obtained by the destructive distillation of the wood of *Pinus palustris* Miller, and of other species of *Pinus* (Nat. Ord., *Coniferæ*).

Thick, viscid, semi-fluid, blackish-brown, heavier than water, transparent in thin layers, becoming granular and opaque by age; having an acid reaction, an empyreumatic, terebinthinate odor, and a sharp, empyreumatic taste; slightly soluble in water, soluble in alcohol, fixed or volatile oils, and in solution of potassa or of soda.

Preparations: Syrupus Picis Liquidæ. Unguentum Picis Liquidæ.

PLUMBI ACETAS.

ACETATE OF LEAD.

[SUGAR OF LEAD.]

$Pb(C_2H_3O_2)_2.3H_2O$; 378.5. — $PbO,C_4H_3O_3.3HO$; 189.25.

Acetate of Lead should be kept in well-stopped bottles.

Colorless, shining, transparent, prismatic crystals or scales, efflorescent and attracting carbonic acid on exposure to air, having a faintly acetous odor, a sweetish, astringent, afterward metallic taste, and a faintly acid reaction. Soluble in 1.8 part of water, and in 8 parts of alcohol at 15 C. (59 F.); in 0.5 part of boiling water, and in 1 part of boiling alcohol. The solutions exhibit generally a slight turbidity, which is removed by the addition of a few drops of acetic acid. When heated, the salt melts, then begins to lose water and acetic acid, and, at a higher temperature, it is decomposed. The aqueous solution yields a black precipitate with hydrosulphuric acid, a white one with diluted sulphuric acid, and a yellow one with test-solution of iodide of potassium. On heating the salt with sulphuric acid, acetous vapors are evolved.

The aqueous solution, when completely precipitated by hydrosulphuric acid, should yield a filtrate which leaves no residue on evaporation (abs. of zinc, alkalies or alkaline earths). On precipitating a 10 per cent. aqueous solution with diluted sulphuric acid, the filtrate, when supersaturated with ammonia, should not exhibit a blue tint (abs. of copper).

Preparation: Liquor Plumbi Subacetatis.

PLUMBI CARBONAS.

CARBONATE OF LEAD.

[White Lead.]

$(PbCO_3)_2Pb(HO)_2$; 773.5 — $2(PbO,CO_2).PbO,HO$; 386.75.

A heavy, white, opaque powder or pulverulent mass, permanent in the air, odorless, tasteless, and insoluble in water or alcohol. When strongly heated, the salt turns yellow, without charring, and, if heated in contact with charcoal, is reduced to metallic lead. The salt dissolves in diluted nitric acid with effervescence, and without leaving more than a trifling residue. This solution yields a black precipitate with hydrosulphuric acid, a white one with diluted sulphuric acid, and a yellow one with test-solution of iodide of potassium. On completely precipitating the solution with hydrosulphuric acid, the filtrate should not leave more than a trifling residue on evaporation (limit of zinc, alkalies or alkaline earths).

Preparation: Unguentum Plumbi Carbonatis.

PLUMBI IODIDUM.

IODIDE OF LEAD.

PbI_2 ; 459.7. — PbI ; 229.85.

A heavy, bright citron-yellow powder, permanent in the air, odorless and tasteless, and of a neutral reaction. Soluble in about 2000 parts of water at 15° C. (59° F.), and in about 200 parts of boiling water; very slightly soluble in alcohol, but readily dissolved by aqueous solutions of the acetates of alkalies and by solution of chloride of ammonium. When strongly heated, the salt fuses, and, at a higher temperature, it is decomposed, emitting violet vapors of iodine, and leaving a citron-yellow residue.

On triturating 1 part of the salt with 2 parts of chloride of ammonium in a porcelain mortar, and adding 2 parts of water, a colorless liquid should result (abs. of and difference from chromate). This liquid, diluted with water, affords a white precipitate with diluted sulphuric acid, and a black one with hydrosulphuric acid. If all the lead has been precipitated from a portion of the solution by the last-named reagent, the filtrate should leave no residue on evaporation and gentle ignition (abs. of zinc, alkalies or alkaline earths).

Preparation: Unguentum Plumbi Iodidi.

PLUMBI NITRAS.

NITRATE OF LEAD.

$Pb(NO_3)_2$: 330.5. — PbO,NO_5 ; 165.25.

Colorless, transparent or white, nearly opaque, octahedral crystals, permanent in the air, odorless, having a sweetish, astringent, afterward metallic taste, and an acid reaction. Soluble in 2 parts of water at 15° C. (59° F.), and in 0.8 part of boiling water; almost insoluble in alcohol. When strongly heated, the salt decrepitates, emits nitrous vapors, and finally leaves a residue of oxide of lead. The aqueous solution yields a black precipitate with hydrosulphuric acid, a white one with diluted sulphuric acid, and a yellow one with test-solution of iodide of potassium.

When completely precipitated with hydrosulphuric acid, the solution should yield a filtrate which leaves no residue on evaporation (abs. of zinc, alkalies or alkaline earths). On precipitating a 10 per cent. solution of the salt with diluted sulphuric acid, the filtrate, when supersaturated with ammonia, should not exhibit a blue tint (abs. of copper).

PLUMBI OXIDUM.

OXIDE OF LEAD.

[LITHARGE.]

PbO; 222.5. — PbO; 111.25.

A heavy, yellowish or reddish-yellow powder, or minute scales, permanent in the air, odorless, tasteless, and insoluble in water or alcohol. When heated in contact with charcoal, it is reduced to metallic lead.

Oxide of Lead should be soluble in diluted nitric acid, without leaving more than a trifling residue, and with but little effervescence (limit of carbonate). The diluted and filtered solution yields a black precipitate with hydrosulphuric acid, a white one with diluted sulphuric acid, and a yellow one with test-solution of iodide of potassium. If the lead be completely precipitated with hydrosulphuric acid, the resulting filtrate should not leave more than a trace of residue on evaporation (limit of zinc, alkalies or alkaline earths).

Preparations: Liquor Plumbi Subacetatis. Emplastrum Plumbi.

PODOPHYLLUM.

PODOPHYLLUM.

[MAY APPLE.]

The rhizome and rootlets of *Podophyllum peltatum* Linné (Nat. Ord., *Berberidaceæ*).

About one-fifth of an inch (5 millimeters) thick, horizontal, nearly cylindrical, consisting of joints about two inches (5 centimeters) long, somewhat enlarged at the end which has a circular scar on the upper side, a tuft of about ten, nearly simple, fragile rootlets on the lower side, and is sometimes branched laterally; smooth or somewhat wrinkled, orange-brown, internally white and mealy, with a circle of small wood-bundles; pith large; inodorous; sweetish, somewhat bitter and acrid.

Preparations: Abstractum Podophylli. Extractum Podophylli. Extractum Podophylli Fluidum. Resina Podophylli.

POTASSA.

POTASSA.

KHO; 56. — $\mathit{KO,HO}$; 56.

Potassa should be kept in well-stopped bottles made of hard glass.

A white, hard and dry solid, generally in form of pencils, very deliquescent, odorless or having a faint odor of lye, of a very acrid and caustic taste, and a strongly alkaline reaction. Soluble in 0.5 part of water, and in 2 parts of alcohol at 15° C. (59° F.); very soluble in boiling water and in boiling alcohol. When heated nearly to a red heat, it melts, forming an oily liquid. At a strong red heat, it is slowly volatilized unchanged. Its aqueous solution dropped into solution of tartaric acid, produces a white, crystalline precipitate which is redissolved by an excess of solution of Potassa.

An aqueous solution of Potassa should be colorless (abs. of organic matter), and, after being supersaturated with nitric acid, should not be more than slightly clouded on the addition of test-solution of nitrate of silver (limit of chloride), or of chloride of barium (limit of sulphate). Dropped into an acid, it should not produce more than a faint effervescence of isolated bubbles (limit of carbonate). If 1 part of Potassa be dissolved in 2 parts of water, and the solution dropped into 4 parts of alcohol, not more than a slight precipitate (limit of silica), or a small amount of a dense aqueous layer (limit of carbonate) should be separated.

To neutralize 2.8 Gm. of Potassa should require not less than 45 C.c. of the volumetric solution of oxalic acid (corresponding to at least 90 per cent. of absolute hydrate of potassium).

Preparations: Liquor Potassæ. Potassa cum Calce.

POTASSA CUM CALCE.

POTASSA WITH LIME.

Potassa, *fifty parts*	50
Lime, *fifty parts*	50
To make *one hundred parts*	100

Rub them together so as to form a powder and keep it in a well-stopped bottle.

A grayish-white powder, deliquescent, having a strongly alkaline reaction, and responding to the tests for calcium and potassium. It should be soluble in hydrochloric acid without leaving more than a small residue.

POTASSA SULPHURATA.

SULPHURATED POTASSA.

[POTASSII SULPHURETUM, *Pharm.*, 1870.]

Sublimed Sulphur, *one part*	1
Carbonate of Potassium, *two parts*	2

Rub the Carbonate of Potassium, previously dried, with the Sulphur, and heat the mixture gradually, in a covered crucible, until it ceases to swell and is completely melted. Then pour the liquid on a marble slab, and, when it has solidified and become cold, break it into pieces, and keep them in a well-stopped bottle of hard glass.

Irregular pieces of a liver-brown color when freshly prepared, turning gradually to greenish-yellow or brownish-yellow, having a faint, disagreeable odor, a bitter, alkaline, repulsive taste, and an alkaline reaction. Soluble in about 2 parts of water at 15° C. (59° F.), with the exception of a small residue; partly soluble in alcohol, the latter leaving undissolved the accompanying impurities. The aqueous solution has an orange-yellow color and exhales the odor of hydrosulphuric acid. The latter is abundantly evolved on the addition of hydrochloric acid, while, at the same time, sulphur is deposited. If a solution of the salt be boiled with an excess of hydrochloric acid, until no more hydrosulphuric acid is given off, the cold filtrate, after being neutralized with soda, yields a white, crystalline precipitate with a saturated solution of bitartrate of sodium.

On triturating together 10 parts of Sulphurated Potassa and 12.69 parts of crystallized sulphate of copper with 60 parts of water, and filtering, the filtrate should remain unaffected by hydrosulphuric acid (presence of at least 56 per cent. of true sulphide of potassium).

POTASSII ACETAS.

ACETATE OF POTASSIUM.

$KC_2H_3O_2$; 98. — $KO,C_4H_3O_3$; 98.

Acetate of Potassium should be kept in well-stopped bottles.

White, foliaceous, satiny, crystalline masses, or a white, granular powder, very deliquescent, odorless, having a warming, mildly pungent and saline taste, and a neutral or faintly alkaline reaction. Soluble in 0.4 part of water, and in 2.5 parts of alcohol at 15° C. (59° F.); very soluble in boiling water and in boiling alcohol. When strongly heated, the salt melts; at a higher temperature it evolves empyreumatic, inflammable vapors, and leaves a blackened residue of an alkaline reaction. The aqueous solution yields a white, crystalline precipitate on the addition of a saturated solution of bitartrate of sodium. On adding sulphuric acid to the salt and heating, vapor of acetic acid is evolved. A cold solution of the salt is rendered deep red by ferric chloride, and, on boiling, a red precipitate is formed.

A two per cent. aqueous solution of the salt, acidulated with acetic acid, should not yield more than a faint opalescence on the addition of test-solution of nitrate of silver (limit of chloride), or of chloride of barium (limit of sulphate). If a solution of the salt, acidulated with nitric acid, is evaporated to dryness, the residue should be completely soluble in water (abs. of silica), and the solution should remain unaffected by hydrosulphuric acid or sulphide of ammonium (abs. of metals), and should yield no precipitate, or at most only a trace, on the addition of test-solution of carbonate of sodium (limit of alkaline earths). Fragments of the salt added to acetic acid should produce no effervescence (abs. of carbonate), and, when sprinkled upon colorless, concentrated sulphuric acid, should not impart any color to the latter (abs. of organic impurities).

If 4.9 Gm. of Acetate of Potassium are ignited until gases cease to be evolved, the alkaline residue should require, for complete neutralization, not less than 49 C.c. of the volumetric solution of oxalic acid (corresponding to at least 98 per cent. of absolute Acetate of Potassium).

POTASSII BICARBONAS.

BICARBONATE OF POTASSIUM.

$KHCO_3$; 100. — $KO,HO,2CO_2$; 100.

Bicarbonate of Potassium should be kept in well-stopped bottles.

Colorless, transparent, monoclinic prisms, permanent in dry air, odorless, having a saline and slightly alkaline taste, and a feebly alkaline reaction. Soluble in 3.2 parts of water at 15° C. (59° F.), and decomposed by boiling water; almost insoluble in alcohol. At a red heat, the salt loses 31 per cent. of its weight. The aqueous solution, on being heated, disengages carbonic acid gas, and finally contains carbonate of potassium. It effervesces on the addition of acids and, with tartaric acid in excess, it produces a white, crystalline precipitate.

When supersaturated with nitric acid, the aqueous solution should yield no precipitate with test-solution of chloride of barium (abs. of sulphate), and at most only a slight cloudiness with test-solution of nitrate of silver (limit of chloride). If 1 Gm. of the salt be dissolved in 200 C.c. of cold water, and the solution be carefully mixed, without agitation, with a solution of 1.22 Gm. of chloride of barium in 200 C.c. of cold water, no precipitate or opalescence should make its appearance within ten minutes (limit of carbonate).

To neutralize 5.0 Gm. of Bicarbonate of Potassium should require 50 C.c. of the volumetric solution of oxalic acid (corresponding to 100 per cent. of pure Bicarbonate of Potassium).

POTASSII BICHROMAS.

BICHROMATE OF POTASSIUM.

$K_2Cr_2O_7$; 294.8. — $KO,2CrO_3$; 147.4.

Large, orange-red, transparent, four-sided, tabular prisms, permanent in the air, odorless, having a bitter, disagreeable, metallic taste, and an acid reaction. Soluble in 10 parts of water at 15° C. (59° F.), and in 1.5 part of boiling water; insoluble in alcohol. The salt fuses below a red heat, forming a dark brown liquid, without loss of weight. At a white heat it evolves oxygen, and leaves a residue of neutral chromate of potassium and green chromic oxide, from which the former may be washed out by water. The aqueous solution yields a white, crystalline precipitate on the addition of a saturated solution of bitartrate of sodium. On heating the powdered salt with hydrochloric acid, chlorine vapor is given off.

A one per cent. solution of the salt, acidulated with nitric acid, should not be precipitated nor be rendered cloudy on the addition of test-solution of chloride of barium (abs. of sulphate).

POTASSII BITARTRAS.

BITARTRATE OF POTASSIUM.

$KHC_4H_4O_6$; 188. — $KO,HO,C_8H_4O_{10}$; 188.

[CREAM OF TARTAR.]

Colorless or slightly opaque, rhombic crystals, or a white, somewhat gritty powder, permanent in the air, odorless, having a pleasant, acidulous taste, and an acid reaction. Soluble in 210 parts of water at 15° C. (59° F.), and in 15 parts of boiling water; very slightly soluble in alcohol. When heated, the salt chars and evolves inflammable vapors having the odor of burnt sugar. On moderate ignition, it leaves a blackened residue of an alkaline reaction, which strongly effervesces with acids. The salt is dissolved by warm solution of potassa, and is again precipitated on the addition of hydrochloric acid. Its aqueous solution, rendered neutral by potassa, produces, with test-solution of nitrate of silver, a white precipitate, becoming black by boiling.

The aqueous solution of the salt, acidulated with nitric acid, should not be rendered turbid by test-solution of chloride of barium (abs. of sulphate), or nitrate of silver (abs. of chloride). A solution of the salt in water of ammonia should remain unaffected by sulphide of ammonium (abs. of metals). If 1 Gm. of Bitartrate of Potassium be digested with 5 C.c. of diluted acetic acid for half an hour, then diluted with distilled water to 500 C.c., the solution agitated and filtered, and 25 C.c. of the filtrate treated with 5 C.c. of test-solution of oxalate of ammonium, the liquid should not become cloudy in less than one minute, nor distinctly turbid in less than one minute and a half (absence of more than 6 per cent. of tartrate of calcium).

Preparation: Pulvis Jalapæ Compositus.

POTASSII BROMIDUM.

BROMIDE OF POTASSIUM.

KBr ; 118.8. — KBr ; 118.8.

Bromide of Potassium should be kept in well-stopped bottles.

Colorless, translucent, cubical crystals, permanent in dry air, odorless, having a pungent, saline taste, and a neutral reaction. Soluble in 1.6 part of water, and in 200 parts of alcohol at 15° C. (59° F.); in 1 part of boiling water, and in 16 parts of boiling alcohol. The commercial salt generally appears in white, opaque or semi-transparent crystals, having a faintly alkaline reaction: but single crystals laid upon moistened red litmus paper should not at once produce a violet-blue stain (abs. of more than about 0.1 per cent. of alkali). At a dull red heat the salt melts without losing weight. At a full red heat it is slowly volatilized without decomposition. The aqueous solution of the salt yields a white, crystalline precipitate on the addition of a saturated solution of bitartrate of sodium. If disulphide of carbon be poured into a solution of the salt, then chlorine water added drop by drop, and the whole agitated, the disulphide will acquire a yellow or yellowish-brown color without a violet tint.

If diluted sulphuric acid be dropped upon crushed crystals of the salt, they should not at once assume a yellow color (abs. of bromate). If 1 Gm. of the salt be dissolved in 10 C.c. of water, some gelatinized starch added, and then a few drops of chlorine water be carefully poured on top, no blue zone should make its appearance at the line of contact of the two liquids (abs. of iodide). On adding to 1 Gm. of the salt, dissolved in 20 C.c. of water, 5 or 6 drops of test-solution of nitrate of barium, no immediate cloudiness or precipitate should make its appearance (limit of sulphate). If 3 Gm. of the well-dried salt be dissolved in distilled water to make 100 C.c., and 10 C.c. of this solution be treated with a few drops of test-solution of bichromate of potassium, and then volumetric solution of nitrate of silver be added, not more than 25.7 C.c. of the latter should be consumed before the red color ceases to disappear on stirring (abs. of more than 3 per cent. of chloride).

1 Gm. of the powdered and dried salt, when completely precipitated by nitrate of silver, yields, if perfectly pure, 1.579 Gm. of dry bromide of silver.

POTASSII CARBONAS.

CARBONATE OF POTASSIUM.

$(K_2CO_3)_2.3H_2O$; 330. — $2(KO,CO_2),3HO$; 165.

Carbonate of Potassium should be kept in well-stopped bottles.

A white, crystalline or granular powder, very deliquescent, odorless, having a strongly alkaline taste, and an alkaline reaction. Soluble in 1 part of water at 15° C. (59° F.), and in 0.7 part of boiling water; insoluble in alcohol. At a red heat the salt loses between 15 and 18 per cent. of its weight, and at a bright red heat it melts. The aqueous solution strongly effervesces on the addition of acids, and, with an excess of tartaric acid, produces a white, crystalline precipitate.

If a solution of the salt be supersaturated with nitric acid, and evaporated to dryness, a residue remains which should be soluble in water without leaving more than a trifling amount of insoluble matter (silica, etc.). This solution should not produce more than a cloudiness on the addition of test-solution of carbonate of sodium (limit of alkaline earths). An aqueous solution of the salt, supersaturated with nitric acid, should not be rendered more than slightly turbid by test-solution of nitrate of silver (limit of chloride), or of chloride of barium (limit of sulphate).

To neutralize 3.45 Gm. of Carbonate of Potassium should require not less than 40.5 C.c. of the volumetric solution of oxalic acid (corresponding to at least 81 per cent. of pure, anhydrous Carbonate of Potassium).

Preparation: Unguentum Sulphuris Alkalinum.

POTASSII CHLORAS.

CHLORATE OF POTASSIUM.

$KClO_3$; 122.4. — KO, ClO_5 ; 122.4.

Chlorate of Potassium should be kept in well-stopped bottles, and should not be triturated with readily oxidizable or combustible substances.

Colorless, monoclinic prisms or plates, of a pearly lustre, permanent in the air, odorless, having a cooling, saline taste, and a neutral reaction. Soluble in 16.5 parts of water at 15° C. (59° F.), and in 2 parts of boiling water; only slightly soluble in alcohol. When heated, the salt melts and afterward gives off an abundance of oxygen, finally leaving a residue of a neutral reaction, amounting to 60.8 per cent. of the original weight, and completely soluble in water. The aqueous solution of this residue yields a white, crystalline precipitate with a saturated solution of bitartrate of sodium, and, with test-solution of nitrate of silver, a white precipitate insoluble in nitric acid, but soluble in ammonia.

A one per cent. aqueous solution of the salt should yield no precipitate with test-solution of chloride of barium (sulphate), or of oxalate of ammonium (calcium), and, at most, only a faint cloudiness with test-solution of nitrate of silver (limit of chloride).

Preparation: Trochisci Potassii Chloratis.

POTASSII CITRAS.

CITRATE OF POTASSIUM.

$K_3C_6H_5O_7.H_2O$; 324. — $3KO, C_{12}H_5O_{11}.2HO$; 324.

Citrate of Potassium should be kept in well-stopped bottles.

A white, granular powder, deliquescent on exposure to air, odorless, having a slightly cooling, faintly alkaline taste, and a neutral or faintly alkaline reaction. Soluble in 0.6 part of water at 15° C. (59° F.), and very soluble in boiling water; very slightly soluble in alcohol. When heated to about 200° C. (392° F.), the salt loses nearly 5.5 per cent. of water. At a higher temperature it chars, and, if kept at a red heat, until gases cease to be evolved, it is converted into a blackened mass of an alkaline reaction, which strongly effervesces with acids. The aqueous solution of the salt yields a white, crystalline precipitate on the addition of a saturated solution of bitartrate of sodium. It remains clear on the addition of chloride of calcium until it is boiled, when a white, granular precipitate is produced.

The aqueous solution of the salt should not effervesce on the addition of an acid (abs. of carbonate), and the solution, acidulated with nitric acid, should remain unaffected by test-solution of chloride of barium (abs. of sulphate), or of nitrate of silver (chloride). A concentrated solution should not deposit a white, crystalline precipitate on the addition of acetic acid (tartrate).

If 5.4 Gm. of Citrate of Potassium are ignited until gases cease to be evolved, the alkaline residue should require for complete neutralization not less than 50 C.c. of the volumetric solution of oxalic acid (corresponding to 100 per cent. of the pure Citrate of Potassium).

POTASSII CYANIDUM.

CYANIDE OF POTASSIUM.

KCN ; 65. — KC_2N ; 65.

Cyanide of Potassium should be kept in well-stopped bottles.

White, opaque, amorphous pieces, or a white, granular powder, deliquescent in damp air, odorless when perfectly dry, but generally of a peculiar, characteristic odor, having a sharp, somewhat alkaline and bitter-almond taste, and a strongly alkaline reaction. The commercial salt is soluble in 2 parts of water at 15° C. (59° F.), and in 1 part of boiling water; it is but sparingly soluble in alcohol. When heated to a low red heat, the salt fuses. Its aqueous solution yields a white, crystalline precipitate on the addition of a saturated solution of bitartrate of sodium. When exposed to the air, the solution exhales the odor of hydrocyanic acid, and, when added to test-solution of nitrate of silver, it yields a white precipitate which is wholly soluble in an excess of cyanide of potassium and also in water of ammonia.

An aqueous solution of the salt should not produce more than a slight effervescence on the addition of an acid (limit of carbonate).

If 0.65 Gm. of Cyanide of Potassium be dissolved in 12 C.c. of water, and volumetric solution of nitrate of silver be gradually added, the precipitate first formed should dissolve on stirring and a permanent precipitate should not appear until at least 45 C.c. of the volumetric solution have been used (corresponding to at least 90 per cent. of pure Cyanide of Potassium).

POTASSII ET SODII TARTRAS.

TARTRATE OF POTASSIUM AND SODIUM.

$KNaC_4H_4O_6.4H_2O$; 282. — $KO,NaO,C_8H_4O_{10}.8HO$; 282.

[Rochelle Salt.]

Colorless, transparent, rhombic crystals, slightly efflorescent in dry air, or a white powder, odorless, having a cooling, mildly saline and slightly bitter taste, and a neutral reaction. Soluble in 2.5 parts of water at 15° C. (59° F.), and very soluble in boiling water; almost insoluble in alcohol. When rapidly heated to about 75° C. (167° F.), the salt melts in its water of crystallization; at a higher temperature it dries, then chars, evolves inflammable vapors having the odor of burnt sugar, and, on moderate ignition, leaves a blackened residue of an alkaline reaction, strongly effervescing with acids, and imparting to a non-luminous flame an intense yellow color, which appears red when observed through a blue glass. A concentrated aqueous solution of the salt yields a white, crystalline precipitate on the addition of acetic acid. With test-solution of nitrate of silver it yields a white precipitate which becomes black on boiling.

A dilute, aqueous solution should yield no precipitate with test-solution of oxalate of ammonium (abs. of calcium). On adding nitric acid to a dilute, aqueous solution of the salt, until the precipitate first formed is redissolved, the resulting solution should yield no precipitate with test-solution of chloride of barium (sulphate), and, at most, only a cloudiness with test-solution of nitrate of silver (limit of chloride). A portion heated with potassa should not give off vapor of ammonia.

If 3.525 Gm. of Tartrate of Potassium and Sodium are ignited until gases cease to be evolved, the alkaline residue should require for complete neutralization not less than 25 C.c. of the volumetric solution of oxalic acid corresponding to 100 per cent. of crystallized Tartrate of Potassium and Sodium).

Preparation: Pulvis Effervescens Compositus.

POTASSII FERROCYANIDUM.

FERROCYANIDE OF POTASSIUM.

$K_4Fe(CN)_6.3H_2O$; 421.9. — $K_2Fe(C_2N)_3.3HO$; 210.95.

Ferrocyanide of Potassium should be kept in well-closed vessels.

Large, coherent, lemon-yellow, translucent and rather soft, four-sided prisms or tablets, slightly efflorescent in dry air, odorless, having a sweetish and saline taste, and a neutral reaction. Soluble in 4 parts of water at 15° C. (59° F.), and in 2 parts of boiling water ; insoluble in alcohol. When gently heated, the salt becomes white ; and at 100° C. (212° F.) it becomes anhydrous, losing 12.8 per cent. of its weight. The aqueous solution yields a white, crystalline precipitate on the addition of a saturated solution of bitartrate of sodium, a dark blue precipitate with ferric salts, a bluish-white precipitate, gradually turning darker, with ferrous salts, a red-brown precipitate with salts of copper, and a white one with acetate of lead.

A concentrated aqueous solution of the salt should not effervesce on the addition of diluted sulphuric acid (abs. of carbonate), and, when diluted and acidulated with hydrochloric acid, should not yield more than a trifling precipitate or cloudiness with chloride of barium (limit of sulphate). If equal parts of the salt and of nitrate of potassium be cautiously deflagrated in a porcelain crucible, the residue extracted with water, and to the filtered solution, acidulated with nitric acid, test-solution of nitrate of silver be added, not more than a faint white opalescence should make its appearance (limit of chloride).

POTASSII HYPOPHOSPHIS.

HYPOPHOSPHITE OF POTASSIUM.

KH_2PO_2 ; 104. — $KO,2HO,PO$; 104.

Hypophosphite of Potassium should be kept in well-stopped bottles.

White, opaque, confused-crystalline masses, or a white, granular powder, very deliquescent, odorless, having a sharp, saline, slightly bitter taste, and a neutral reaction. Soluble in 0.6 part of water, and in 7.3 parts of alcohol at 15° C. (59° F.); in 0.3 part of boiling water and in 3.6 parts of boiling alcohol. When heated in a dry test-tube, the salt loses adhering moisture, then evolves a spontaneously inflammable gas (phosphoretted hydrogen), burning with a bright, yellow flame. On triturating or heating the salt with an oxidizing agent, the mixture will explode. The aqueous solution of the salt yields a white, crystalline precipitate on the addition of a saturated solution of bitartrate of sodium. With test-solution of nitrate of silver it yields a white precipitate which rapidly turns brown and black, separating metallic silver. Acidulated with hydrochloric acid and added to excess of test-solution of mercuric chloride, it first produces a white precipitate of calomel, and, on further addition, causes the separation of metallic mercury.

The aqueous solution of the salt should not effervesce on the addition of an acid (abs. of carbonate), and should not be precipitated or rendered cloudy by test-solution of oxalate of ammonium (abs. of calcium). When acidulated with hydrochloric acid, it should not produce a white precipitate or cloudiness with test-solution of chloride of barium (sulphate). On mixing the aqueous solution with test-solution of magnesium, not more than a slight cloudiness should make its appearance (limit of phosphate).

Preparation : Syrupus Hypophosphitum.

POTASSII IODIDUM.

IODIDE OF POTASSIUM.

KI; 165.6. — KI; 165.6

Iodide of Potassium should be kept in well-stopped bottles.

Colorless, translucent, cubical crystals, slightly deliquescent, having a peculiar, faint odor, a pungent, saline, afterward somewhat bitter taste, and a neutral reaction. Soluble in 0.8 part of water, and in 18 parts of alcohol at 15° C. (59° F.); in 0.5 part of boiling water, and in 6 parts of boiling alcohol. The commercial salt generally appears in white, opaque crystals, having a faintly alkaline reaction; but single crystals laid upon moistened red litmus paper should not at once produce a violet-blue stain (abs. of more than about 0.1 per cent. of alkali). At a dull red heat, the salt melts without losing weight. At a full red heat, it is slowly volatilized without decomposition. The aqueous solution of the salt yields a white, crystalline precipitate on the addition of a saturated solution of bitartrate of sodium. If disulphide of carbon be poured into a solution of the salt, then chlorine water added drop by drop, and the whole agitated, the disulphide of carbon will acquire a violet color.

The aqueous solution of the salt, mixed with gelatinized starch and afterward with diluted sulphuric acid, should not at once acquire a blue color (abs. of iodate). If 1 Gm. of the salt be dissolved in 10 C.c. of water of ammonia, then shaken with a solution of 1.1 Gm. of nitrate of silver in 20 C.c. of water, and the filtrate be supersaturated with 7 C.c. of nitric acid, no cloudiness should make its appearance within ten minutes (abs. of more than about 0.5 per cent. of chloride or bromide). On adding to 1 Gm. of the salt, dissolved in 30 C.c. of water, 5 or 6 drops of test-solution of nitrate of barium, no immediate cloudiness or precipitate should make its appearance (limit of sulphate).

1 Gm. of the powdered and dried salt, when completely precipitated by nitrate of silver, yields, if perfectly pure, 1.415 Gm. of dry iodide of silver.

Preparation: Unguentum Potassii Iodidi.

POTASSII NITRAS.

NITRATE OF POTASSIUM.

KNO_3; 101. — KO,NO_5; 101.

Colorless, transparent, six-sided, rhombic prisms, or a crystalline powder, permanent in the air, odorless, having a cooling, saline, and pungent taste, and a neutral reaction. Soluble in 4 parts of water at 15° C. (59° F.), and in 0.4 part of boiling water; almost insoluble in alcohol. When heated to about 340° C. (644 F.), the salt melts; at a higher temperature it is decomposed, giving off oxygen, and leaving a residue which emits nitrous vapors on the addition of sulphuric acid. Thrown upon red-hot coals, the salt deflagrates. The aqueous solution of the salt yields a white, crystalline precipitate on the addition of a saturated solution of bitartrate of sodium.

The aqueous solution of the salt should remain unaffected by hydrosulphuric acid or sulphide of ammonium (abs. of metals), also by test-solution of carbonate of ammonium (alkaline earths). If previously acidulated with nitric acid, it should yield no precipitate or cloudiness with test-solution of nitrate of barium (sulphate), and, at most, only a faint opalescence with test-solution of nitrate of silver (limit of chloride).

If 1 Gm. of the dried salt be moistened with 1 Gm. of concentrated sulphuric acid, and the mixture be kept at a red heat until it ceases to lose weight, the residue should weigh 0.86 Gm.

Preparations: Argenti Nitras Dilutus. Charta Potassii Nitratis.

POTASSII PERMANGANAS.

PERMANGANATE OF POTASSIUM.

$K_2Mn_2O_8$; 314. — KO,Mn_2O_7 ; 157.

Permanganate of Potassium should be kept in well-stopped bottles, and should not be triturated nor combined in solution with organic or readily oxidizable substances.

Deep purple-violet, or nearly black, needle-shaped, rhombic prisms, of a metallic lustre, permanent in the air, odorless, having a sweet, afterward disagreeable, astringent taste, and a neutral reaction. Soluble, with the exception of a scanty, brown residue, in 20 parts of water at 15° C. (59° F.), and in 3 parts of boiling water. It is decomposed by alcohol. When heated to redness, the salt gives off oxygen and leaves a black residue of an alkaline reaction. A very dilute solution of the salt has a rose color without a tinge of green This color is destroyed by the addition of oxalic acid, or of many other organic or readily oxidizable substances, with the formation of a brown precipitate, soluble in diluted sulphuric acid, forming a colorless liquid.

If a solution of the salt be mixed with enough oxalic and diluted sulphuric acid to produce a clear, colorless liquid, and a portion of this be poured upon a cold solution of ferrous sulphate in sulphuric acid, no brown or blackish-brown zone should make its appearance at the line of contact of the two liquids (abs. of nitrate). Another portion of the decolorized liquid should yield no permanent precipitate or cloudiness on the addition of a few drops of test-solution of nitrate of silver (chloride). On boiling an aqueous solution of the salt with an excess of ammonia, until all the manganese is precipitated as hydrated oxide, the colorless filtrate, acidulated with nitric acid, should yield no precipitate, or, at most, only a faint cloudiness, with test-solution of nitrate of barium (limit of sulphate).

If 0.785 Gm. of the salt be dissolved in 50 C.c. of boiling distilled water and 5 C.c. of sulphuric acid be cautiously added, the solution so formed should require for complete decoloration not less than 24.7 C.c. of the volumetric solution of oxalic acid (corresponding to at least 98.8 per cent. of pure Permanganate of Potassium).

POTASSII SULPHAS.

SULPHATE OF POTASSIUM.

K_2SO_4 ; 174. — KO,SO_3 ; 87.

Colorless, hard, six-sided, rhombic prisms, permanent in the air, odorless, having a sharp, saline, slightly bitter taste, and a neutral reaction. Soluble in 9 parts of water at 15° C. (59° F.), and in 4 parts of boiling water; insoluble in alcohol. When heated, the crystals decrepitate, and at a white heat they fuse, solidifying on cooling to a crystalline mass of an alkaline reaction. The aqueous solution yields a white, crystalline precipitate on the addition of a saturated solution of bitartrate of sodium. With test-solution of chloride of barium it yields a white precipitate, insoluble in nitric acid.

The aqueous solution of the salt should not be precipitated, nor be rendered cloudy, by test-solution of carbonate of ammonium, nor by test-solution of phosphate of sodium with addition of ammonia (abs. of alkaline earths). It should remain unaffected by hydrosulphuric acid or sulphide of ammonium (abs. of metals), and should not be precipitated or rendered cloudy by test-solution of nitrate of silver (abs. of chloride).

1 Gm. of Sulphate of Potassium, when completely precipitated by chloride of barium, yields 1.338 Gm. of dry sulphate of barium.

POTASSII SULPHIS.

SULPHITE OF POTASSIUM.

$K_2SO_3.2H_2O$; 194. — $KO,SO_2.2HO$; 97.

Sulphite of Potassium should be kept in well-stopped bottles.

White, opaque, obliquely rhombic, octahedral crystals, or a crystalline powder, somewhat deliquescent, odorless, having a bitter, saline, and sulphurous taste, and a neutral or feebly alkaline reaction. Soluble in 4 parts of water at 15° C. (59° F.), and in 5 parts of boiling water ; only sparingly soluble in alcohol. When gently heated, the salt loses its water of crystallization (18.5 per cent.) ; at a red heat it is decomposed and leaves a residue of an alkaline reaction. The aqueous solution of the salt yields a white, crystalline precipitate on the addition of a saturated solution of bitartrate of sodium. Addition of diluted hydrochloric acid to the aqueous solution gives rise to the odor of burning sulphur, and the solution does not become cloudy (difference from hyposulphite).

A one per cent. aqueous solution of the salt, strongly acidulated with hydrochloric acid, should produce no precipitate, or, at most, only a white cloudiness, on the addition of a few drops of test-solution of chloride of barium (limit of sulphate).

If 0.485 Gm. of the salt be dissolved in 25 C.c. of water, and a little gelatinized starch added, at least 45 C.c of the volumetric solution of iodine should be required, until a permanent blue tint appears after stirring (corresponding to at least 90 per cent. of pure Sulphite of Potassium).

POTASSII TARTRAS.

TARTRATE OF POTASSIUM.

$(K_2C_4H_4O_6)_2.H_2O$; 470. — $2KO,C_8H_4O_{10}.HO$; 235.

Tartrate of Potassium should be kept in well-stopped bottles.

Small, transparent or white, monoclinic crystals, or a white powder, somewhat deliquescent, odorless, having a saline, slightly bitter taste, and a neutral reaction. Soluble in 0.7 part of water at 15° C. (59° F.), and in 0.5 part of boiling water ; almost insoluble in alcohol. When heated, the salt melts, then chars, and evolves inflammable vapors having the odor of burnt sugar. On moderate ignition, it leaves a blackened residue of an alkaline reaction, strongly effervescing with acids. A concentrated, aqueous solution of the salt yields a white, crystalline precipitate on the addition of acetic acid. With test-solution of nitrate of silver it yields a white precipitate which becomes black on boiling.

A 10 per cent. aqueous solution should yield no precipitate with test-solution of oxalate of ammonium (abs. of calcium). On adding nitric acid to a one per cent. solution of the salt, until the precipitate first formed is redissolved, the resulting solution should yield no precipitate with test-solution of chloride of barium (sulphate), and, at most, only a cloudiness with test-solution of nitrate of silver (limit of chloride).

If 2.938 Gm. of Tartrate of Potassium are ignited till gases cease to be evolved, the alkaline residue should require, for complete neutralization, not less than 25 C.c. of the volumetric solution of oxalic acid (corresponding to 100 per cent. of pure Tartrate of Potassium).

PRINOS.

PRINOS.

[BLACK ALDER.]

The bark of *Prinos verticillatus* Linné (*Ilex verticillata* Gray.—Nat. Ord., *Aquifoliaceæ*).

Thin, slender fragments, about one twenty-fifth of an inch (1 millimeter) thick, fragile; outer surface brownish ash-colored, with whitish patches and blackish dots and lines, the corky layer easily separating from the green tissue; inner surface pale greenish or yellowish; fracture short, tangentially striate; nearly inodorous, bitter, slightly astringent.

PRUNUM.

PRUNE.

The fruit of *Prunus domestica* Linné (Nat. Ord., *Rosaceæ, Amygdaleæ*).

Oblong or sub-globular, shrivelled, blackish-blue, glaucous; the sarcocarp brownish-yellow, sweet and acidulous; putamen hard, smooth, or irregularly ridged; the seed almond-like in shape, but smaller, and of a bitter taste.

Preparation: Confectio Sennæ.

PRUNUS VIRGINIANA.

WILD CHERRY.

The bark of *Prunus serotina* Ehrhart (*Cerasus serotina* Loiseleur.—Nat. Ord., *Rosaceæ, Amygdaleæ*), collected in autumn.

In curved pieces or irregular fragments, one-twelfth of an inch (2 millimeters) or more thick, outer surface greenish-brown, or yellowish-brown, smooth and somewhat glossy, marked with transverse scars; if collected from old wood and deprived of the corky layer, the outer surface is rust-brown and uneven; inner surface somewhat striate or fissured. Upon maceration in water it develops a distinct bitter-almond odor; its taste is astringent, aromatic and bitter.

The bark of the small branches is to be rejected.

Preparations: Extractum Pruni Virginianæ Fluidum. Infusum Pruni Virginianæ. Syrupus Pruni Virginianæ.

PULSATILLA.

PULSATILLA.

The herb of *Anemone Pulsatilla* and *Anemone pratensis* Linné, and of *Anemone patens* Linné, var. *Nuttalliana* Gray (Nat. Ord., *Ranunculaceæ*), collected soon after flowering.

It should be carefully preserved and not be kept longer than one year.

Leaves radical, petiolate, silky-villous, twice or thrice deeply three-parted or pinnately cleft, with linear, acute lobes, appearing after the large, purple (or in the last-named species, sometimes whitish) flowers; inodorous, very acrid.

PULVIS ANTIMONIALIS.

ANTIMONIAL POWDER.

[JAMES' POWDER.]

Oxide of Antimony, *thirty-three parts*	33
Precipitated Phosphate of Calcium, *sixty-seven parts*	67
To make *one hundred parts*	100

Mix them intimately.

PULVIS AROMATICUS.

AROMATIC POWDER.

Cinnamon, in No. 60 powder, *thirty-five parts*	35
Ginger, in No. 60 powder, *thirty-five parts*	35
Cardamom, deprived of the capsules and crushed, *fifteen parts*	15
Nutmeg, in No. 20 powder, *fifteen parts*	15
To make *one hundred parts*	100

Rub the Cardamom and Nutmeg with a portion of the Cinnamon, until reduced to a fine powder; then add the remainder of the Cinnamon and the Ginger, and rub them together until they are thoroughly mixed.

Preparation: Extractum Aromaticum Fluidum.

PULVIS CRETÆ COMPOSITUS.

COMPOUND CHALK POWDER.

Prepared Chalk, *thirty parts*	30
Acacia, in fine powder, *twenty parts*	20
Sugar, in fine powder, *fifty parts*	50
To make *one hundred parts*	100

Mix them intimately.

Preparation: Mistura Cretæ.

PULVIS EFFERVESCENS COMPOSITUS.

COMPOUND EFFERVESCING POWDER.

[Pulveres Effervescentes Aperientes, *Pharm.*, 1870.—Seidlitz Powder.]

	Grains.	Grammes.
Bicarbonate of Sodium, in fine powder, *four hundred and eighty grains*	480	31.00
Tartrate of Potassium and Sodium, in fine powder, *fourteen hundred and forty grains*	1440	93.00
Tartaric Acid, in fine powder, *four hundred and twenty grains*	420	27.00

Mix the Bicarbonate of Sodium intimately with the Tartrate of Potassium and Sodium, divide the mixture into *twelve* (12) *equal parts*, and wrap each part in a separate paper of some pronounced color, as blue.

Then divide the Tartaric Acid into the *same number* (12) *of equal parts*, and wrap each part in a separate paper of a color distinctly different from that used for wrapping the mixture, as white. Keep the powders in well-closed vessels.

PULVIS GLYCYRRHIZÆ COMPOSITUS.

COMPOUND POWDER OF GLYCYRRHIZA.

Senna, in No. 60 powder, *eighteen parts*	18
Glycyrrhiza, in No. 60 powder, *sixteen parts*	16
Fennel, in No. 60 powder, *eight parts*	8
Washed Sulphur, *eight parts*	8
Sugar, in fine powder, *fifty parts*	50
To make *one hundred parts*	100

Rub them together until they are thoroughly mixed.

PULVIS IPECACUANHÆ ET OPII.

POWDER OF IPECAC AND OPIUM.

[Pulvis Ipecacuanhæ Compositus, *Pharm.*, 1870. Dover's Powder.]

Ipecac, in No. 60 powder, *ten parts*	10
Powdered Opium, *ten parts*	10
Sugar of Milk, in No. 30 powder, *eighty parts*	80
To make *one hundred parts*	100

Rub them together into a very fine powder.

PULVIS JALAPÆ COMPOSITUS.

COMPOUND POWDER OF JALAP.

Jalap, in No. 60 powder, *thirty-five parts*	35
Bitartrate of Potassium, in fine powder, *sixty-five parts*	65
To make *one hundred parts*	100

Rub them together until they are thoroughly mixed.

PULVIS MORPHINÆ COMPOSITUS.

COMPOUND POWDER OF MORPHINE.

[TULLY'S POWDER.]

Sulphate of Morphine, *one part*	1
Camphor, *twenty parts*	20
Glycyrrhiza, in No. 60 powder, *twenty parts*	20
Precipitated Carbonate of Calcium, *twenty parts*	20
Alcohol, *a sufficient quantity.*	

Rub the Camphor with a little Alcohol, and afterward with the Glycyrrhiza and Precipitated Carbonate of Calcium, until a uniform powder is produced. Then rub the Sulphate of Morphine with this powder, gradually added, until the whole is thoroughly mixed.

PULVIS RHEI COMPOSITUS.

COMPOUND POWDER OF RHUBARB.

Rhubarb, in No. 60 powder, *twenty-five parts*	25
Magnesia, *sixty-five parts*	65
Ginger, in No. 60 powder, *ten parts*	10
To make *one hundred parts*	100

Rub them together until they are thoroughly mixed.

PYRETHRUM.

PYRETHRUM.

[PELLITORY.]

The root of *Anacyclus Pyrethrum* De Candolle (Nat. Ord., *Compositæ*).

From two to four inches (5 to 10 centimeters) long, somewhat fusiform, nearly simple, about half an inch (12 millimeters) thick, annulate above, wrinkled below, externally dark grayish-brown; internally brownish-white; fracture short; the bark is rather thick, contains two circles of resin-cells, and surrounds the slender wood-bundles and medullary rays, the latter having about four circles of shining resin-cells; it is inodorous, pungent and very acrid.

Preparation: Tinctura Pyrethri.

PYROXYLINUM.

PYROXYLIN.

[PYROXYLON, *Pharm.*, 1870. SOLUBLE GUN COTTON.]

Cotton, *one part*	I
Nitric Acid, *ten parts*	IO
Sulphuric Acid, *twelve parts*	I2
Alcohol,	
Stronger Ether,	
Water, each, *a sufficient quantity.*	

Mix the Acids gradually in a glass or porcelain vessel and, when the temperature of the mixture has fallen to 32° C. (90° F.), add the Cotton. By means of a glass-rod imbue it thoroughly with the Acids and allow it to macerate for ten hours, or, until a small sample of the Cotton, taken out, thoroughly washed with a large quantity of Water and subsequently with Alcohol and pressed, is found to be soluble, when shaken in a test-tube with a mixture of *one* (1) *volume* of Alcohol and *three* (3) *volumes* of Stronger Ether. Then remove the Cotton from the Acids, transfer it to a larger vessel and wash it, first with cold Water until the washings cease to have an acid taste, and afterward with boiling Water. Finally drain the Pyroxylin on filtering paper and dry it, in small, detached pellets, by means of a water-bath.

Pyroxylin should be kept loosely packed, in well-closed vessels, containing not more than about 31 grammes (or about 480 grains), in a cool and dry place, remote from lights or fire.

Preparation: Collodium.

QUASSIA.

QUASSIA.

The wood of *Picræna excelsa* Lindley (*Quassia excelsa* Swartz.—Nat. Ord., *Simarubaceæ*).

In billets of various sizes, dense, tough, of medium hardness, porous, with a minute pith and narrow, medullary rays. In the shops it is usually met with in the form of chips or raspings, yellowish-white, inodorous, intensely bitter.

Preparations: Extractum Quassiæ. Extractum Quassiæ Fluidum. Tinctura Quassiæ

QUERCUS ALBA.

WHITE OAK.

The bark of *Quercus alba* Linné (Nat. Ord., *Cupuliferæ*).

In nearly flat pieces, deprived of the corky layer; about a quarter of an inch (6 millimeters) thick, pale brown; inner surface with short, sharp, longitudinal ridges; tough; of a coarse, fibrous fracture, a faint, tan-like odor, and a strongly astringent taste.

As met with in the shops it is usually in an irregularly coarse, fibrous powder, which does not tinge the saliva yellow.

QUILLAIA.

QUILLAIA.

[Soap Bark.]

The bark of *Quillaia Saponaria* Molina (Nat. Ord., *Rosaceæ, Roseæ*).

Flat, large pieces, about one-fifth of an inch (5 millimeters) thick; outer surface brownish-white, often with small patches of brown cork attached, otherwise smooth; inner surface whitish, smooth; fracture splintery, checkered with pale brownish bast-fibres imbedded in white tissue; inodorous, very acrid and sternutatory.

QUINIDINÆ SULPHAS.

SULPHATE OF QUINIDINE.

$(C_{20}H_{24}N_2O_2)_2H_2SO_4.2H_2O$; 782. — $(C_{20}H_{12}NO_2)_2,HO,SO_3.2HO$; 391.

The neutral sulphate of an alkaloid prepared from different species of Cinchona, chiefly *Cinchona pitayensis* Weddell (Nat. Ord., *Rubiaceæ, Cinchoneæ*).

White, silky needles, permanent in the air, odorless, having a very bitter taste, and a neutral or faintly alkaline reaction. Soluble in 100 parts of water, and in 8 parts of alcohol at 15° C. (59° F.); in 7 parts of boiling water, and very soluble in boiling alcohol; also in acidulated water, and in 20 parts of chloroform, but almost insoluble in ether. It parts with its water of crystallization (4.3 per cent. of its weight) at 120° C. (248° F.). On ignition, the salt burns slowly without leaving a residue. The aqueous solution, when acidulated with sulphuric acid, has a decided, blue fluorescence. When treated, first, with fresh chlorine water, and then, with a slight excess of water of ammonia, the salt produces an emerald-green color. If a little water of ammonia is added to a solution of the salt, a white precipitate (Quinidine) is produced, which requires a considerable excess of water of ammonia, or about 30 times its weight of ether to dissolve it. Test-solution of chloride of barium added to an aqueous solution of the salt, throws down a white precipitate insoluble in hydrochloric acid.

The salt should not be colored or not more than very slightly colored by undiluted sulphuric acid (abs. of foreign organic matters), nor be reddened by nitric acid (difference from morphine). If 0.5 Gm., each, of Sulphate of Quinidine and of iodide of potassium (not alkaline to test-paper), be agitated with 10 C.c. of water at about 60° C. (140° F.), the mixture then macerated at 15° C. (59° F.) for half an hour, with frequent stirring, and filtered,—the addition, to the filtrate, of a drop or two of water of ammonia should not cause more than a slight turbidity (abs. of more than small proportions of cinchonine, cinchonidine or quinine).

QUININA.

QUININE.

$C_{20}H_{24}N_2O_2.3H_2O$ (crystallized) ; 378. — $C_{20}H_{12}NO_2.3HO$; 189.

An alkaloid prepared from different species of Cinchona.

A white, flaky, amorphous or minutely crystalline powder, permanent in the air, odorless, having a very bitter taste, and an alkaline reaction. Soluble in about 1600 parts of water, and in 6 parts of alcohol at 15° C. (59° F.); in 700 parts of boiling water, in 2 parts of boiling alcohol, in about 25 parts of ether, in about 5 parts of chloroform, in about 200 parts of glycerin, and also soluble in benzin, benzol, water of ammonia, or in diluted acids, which latter it neutralizes. When heated to 57° C. (135° F.), it melts, and, at the temperature of the water-bath, loses about 9 per cent. (about 2 molecules) of its water of crystallization, the remainder being expelled at 125° C. (257° F.). On ignition, the alkaloid burns slowly without leaving a residue. The solution of Quinine in diluted sulphuric acid has a vivid, blue fluorescence. Treated, first, with fresh chlorine water, and then, with a slight excess of water of ammonia, Quinine produces an emerald-green color.

Quinine should afford no color, or none darker than a pale yellow, with undiluted sulphuric acid (abs. of foreign organic matters), nor should it be reddened by nitric acid (difference from morphine). If 1 Gm. of Quinine be mixed, in a mortar, with 0.5 Gm. of sulphate of ammonium and 5 C.c. of distilled water, the mixture thoroughly dried on the water-bath, the residue (which should be neutral to test-paper) agitated with 10 C.c. of distilled water, this mixture macerated at 15° C. (59° F.) for half an hour, then filtered through a small filter, 5 C.c. of the filtrate taken in a test-tube, and 7 C.c. of water of ammonia (sp. gr. 0.960) then added,—on closing the test-tube with the finger and gently turning it until the ammonia is fully intermixed, a clear liquid should be obtained. If the temperature of maceration has been 16° C. (60.8° F.), 7.5 C.c. of the water of ammonia may be added; if 17° C. (62.6° F.), 8 C.c. may be added. In each instance a clear liquid indicates the absence of more than about 1 per cent. of cinchonidine and quinidine, and of more than traces of cinchonine.

Preparations: Ferri et Quininæ Citras. Liquor Ferri et Quininæ Citratis. Syrupus Ferri, Quininæ et Strychninæ Phosphatum.

QUININÆ BISULPHAS.

BISULPHATE OF QUININE.

$C_{20}H_{24}N_2O_2H_2SO_4.7H_2O$; 548. — $C_{20}H_{12}NO_2,HO,SO_3.7HO$; 274.

Bisulphate of Quinine should be kept in well-stopped bottles.

Colorless, clear, orthorhombic crystals, or small needles, efflorescing and becoming opaque on exposure to air, odorless, having a very bitter taste, and a strongly acid reaction. Soluble in about 10 parts of water (with vivid blue fluorescence), and in 32 parts of alcohol at 15° C. (59° F.); very soluble in boiling water and in boiling alcohol. At 100° C. (212° F.) it loses all its water of crystallization, and at 135° C. (275° F.) it is converted into bisulphate of quinicine. On ignition, the salt burns slowly without leaving a residue. Treated, first, with fresh chlorine water, and then, with a slight excess of water of ammonia, it produces an emerald-green color. Its aqueous solution yields, with water of ammonia, a precipitate readily soluble in an excess of water of ammonia, or in ether. With test-solution of chloride of barium it produces a white precipitate insoluble in hydrochloric acid.

The salt should not be colored, or not more than very slightly colored, by undiluted sulphuric acid (abs. of foreign organic matters), nor be reddened by nitric acid (difference from morphine). If 1 Gm. of Bisulphate of Quinine be dried, on a water-bath, to constant weight, the residue should weigh not less than 0.77 Gm. (abs. of free water). If 1 Gm. of the salt, previously dried at 100° C. (212° F.), be agitated with 8 C.c. of distilled water, the mixture made exactly neutral to test-paper by the cautious addition of water of ammonia, then increased by the addition of distilled water to 10 C.c., and macerated at 15° C. (59° F.) for half an hour, upon proceeding further as directed for the corresponding test under quinine (see *Quinina*), the results there given should be obtained.

QUININÆ HYDROBROMAS.

HYDROBROMATE OF QUININE.

$C_{20}H_{24}N_2O_2HBr.2H_2O$; 440.8. — $(C_{20}H_{12}NO_2)_2,HBr.4HO$; 440.8.

Hydrobromate of Quinine should be kept in well-stopped bottles.

Colorless, lustrous needles, permanent in ordinary air, but readily efflorescing at a gentle heat, odorless, having a very bitter taste, and a neutral or slightly alkaline reaction. Soluble in about 16 parts of water, and in 3 parts of alcohol at 15° C. (59° F.); in 1 part of boiling water, and in less than 1 part of boiling alcohol; in 6 parts of ether, in 12 parts of chloroform, and moderately soluble in glycerin. On ignition, the salt burns slowly without leaving a residue. The aqueous solution, when acidulated with sulphuric acid, has a blue fluorescence, and, when treated, first, with fresh chlorine water, and then with a slight excess of water of ammonia, it produces an emerald-green color. Water of ammonia added to the aqueous solution throws down a white precipitate readily soluble in an excess of water of ammonia, or in ether. Test-solution of nitrate of silver produces a white precipitate, which is insoluble in diluted nitric acid, and, when filtered off and washed, insoluble in solution of carbonate of ammonium.

The salt should not be colored, or not more than very slightly colored, by undiluted sulphuric acid (abs. of foreign organic matters), nor be reddened by nitric acid (difference from morphine). If a small portion of the salt be dried on the water-bath until it ceases to lose weight, and the residue cooled in a desiccator, the loss of weight should not exceed 8.2 per cent. The aqueous solution should not be rendered turbid by diluted sulphuric acid (abs. of barium), and not more than slightly turbid by test-solution of chloride of barium (limit of sulphate). If 1.5 Gm. of the salt be dissolved in 15 C.c. of hot distilled water, the solution stirred with 0.6 Gm. of crystallized sulphate of sodium in powder, the mixture maintained at 15° C. (59° F.) for half an hour and then drained through a filter only large enough to contain it, until 5 C.c. of filtrate are obtained—upon treating this liquid as directed for the corresponding test under quinine (see *Quinina*), the results there given should be obtained.

QUININÆ HYDROCHLORAS.

HYDROCHLORATE OF QUININE.

$C_{20}H_{24}N_2O_2HCl.2H_2O$; 396.4. — $(C_{20}H_{12}NO_2)_2,HCl.4HO$; 396.4.

Hydrochlorate of Quinine should be kept in well-stopped bottles.

White, lustrous needles, forming tufts, permanent in ordinary air, but readily efflorescing at a gentle heat, odorless, having a very bitter taste, and a neutral or faintly alkaline reaction. Soluble in 34 parts of water, and in 3 parts of alcohol at 15° C. (59° F.); in 1 part of boiling water, and very soluble in boiling alcohol;

when rendered anhydrous, it is soluble in 1 part of chloroform. On ignition, the salt burns slowly without leaving a residue. The saturated, aqueous solution does not show any blue fluorescence, which, however, appears, in some degree, in more dilute solutions, if not acidulated. When treated, first, with fresh chlorine water, and then, with a slight excess of water of ammonia, it produces an emerald-green color. Water of ammonia added to the aqueous solution, throws down a white precipitate readily soluble in an excess of water of ammonia, or in ether. Test-solution of nitrate of silver produces a white precipitate insoluble in nitric acid, but soluble in ammonia.

The salt should not be colored, or only very slightly colored, by undiluted sulphuric acid (abs. of foreign organic matters), nor be reddened by nitric acid (difference from morphine). The aqueous solution of the salt should not be rendered turbid by diluted sulphuric acid (abs. of barium), nor more than slightly turbid by test-solution of chloride of barium (limit of sulphate).

If a small portion of the salt be dried on a water-bath until it ceases to lose weight, and the residue cooled in a desiccator, the loss of weight should not exceed 9 per cent. If 1.5 Gm. be dissolved in 15 C.c. of hot distilled water, the solution stirred with 0.75 Gm. of crystallized sulphate of sodium in powder, the mixture maintained at 15° C. (59° F.) for half an hour, and then drained through a filter only large enough to contain it, until 5 C.c. of filtrate are obtained—upon treating this liquid as directed for the corresponding test under quinine (see *Quinina*), the results there given should be obtained.

QUININÆ SULPHAS.

SULPHATE OF QUININE.

$(C_{20}H_{24}N_2O_2)_2H_2SO_4.7H_2O$; 872. — $(C_{20}H_{12}NO_2)_2.HO,SO_3.7HO$; 436.

[Quiniæ Sulphas, *Pharm.*, 1870.]

Sulphate of Quinine should be kept in well-stopped bottles.

Snow-white, loose, filiform crystals, fragile and somewhat flexible, making a very light and easily compressible mass, lustreless from superficial efflorescence after standing in the air, odorless, having a persistent, very bitter taste, and a neutral reaction. Soluble in 740 parts of water, and in 65 parts of alcohol at 15° C. (59° F.); in about 30 parts of boiling water, in about 3 parts of boiling alcohol, in small proportions of acidulated water, in 40 parts of glycerin, in 1000 parts of chloroform, and very slightly soluble in ether. When long exposed to the air, or when kept at 50° to 60° C. (122° to 140° F.) for some hours, it loses most of its water of crystallization (all except 4.6 per cent., or 2 to 3 molecules of water), the last portion being slowly expelled at 100° to 115° C. (212° to 239° F.). On ignition, the salt burns slowly without leaving a residue. The aqueous solution of the salt, especially when acidulated with sulphuric acid, has a vivid, blue fluorescence. When treated, first, with fresh chlorine water, and then, with a slight excess of water of ammonia, the salt produces an emerald-green color. Water of ammonia added to the aqueous solution of the salt, throws down a white precipitate readily soluble in an excess of water of ammonia, and soluble in about 20 times its weight of ether (the other cinchona alkaloids requiring larger proportions of ether or of water of ammonia for solution). Dissolved in water, it yields, with test-solution of chloride of barium, a white precipitate insoluble in hydrochloric acid.

The salt should not be colored, or not more than very slightly colored, by undiluted sulphuric acid (abs. of foreign organic matters), nor be reddened by nitric acid (difference from morphine). 20 C.c. of absolute alcohol should dissolve 0.2 Gm. of the salt, forming a clear liquid. If a portion of the salt be boiled with milk of lime, no ammoniacal vapor should be given off.

If 1 Gm. of the salt be placed in a porcelain capsule, and dried at a temperature of 100° C. (212° F.) for three hours, or until a constant weight is attained, the remainder, cooled in a desiccator, should weigh not less than 0.838 Gm. (abs. of more than 8 molecules, or 16.18 per cent. of water). If the residue thus dried at 100° C.

(212° F.), be agitated with 10 C.c. of distilled water, the mixture macerated at 15° C. (59° F.) for half an hour, then filtered through a small filter, 5 C.c. of the filtrate taken in a test-tube, and 7 C. c. of water of ammonia (sp. gr. 0.960) then added,—on closing the test-tube with the finger and gently turning it until the ammonia is fully intermixed, a clear liquid should be obtained. If the temperature of maceration has been 16° C. (60.8° F.), 7.5 C.c. of the water of ammonia may be added; if 17° C. (62.6° F.), 8 C.c. may be added. In each instance, a clear liquid indicates the absence of more than about 1 per cent. of cinchonidine or quinidine, and of more than traces of cinchonine.

QUININÆ VALERIANAS.

VALERIANATE OF QUININE.

$C_{20}H_{24}N_2O_2C_5H_{10}O_2.H_2O$; 444. — $(C_{20}H_{12}NO_2)_2,C_{10}H_{10}O_4.2HO$; 444.

[Quiniæ Valerianas, *Pharm.*, 1870.]

Valerianate of Quinine should be kept in well-stopped bottles.

White, or nearly white, pearly, lustrous, triclinic crystals, permanent in the air, having a slight odor of valerianic acid, a bitter taste, and a neutral reaction. Soluble in about 100 parts of water, and in 5 parts of alcohol at 15° C. (59° F.); in 40 parts of boiling water, in 1 part of boiling alcohol, and slightly soluble in ether. When heated to about 90° C. (194° F.), the salt melts, forming a colorless liquid. On ignition, it burns slowly without leaving a residue. The aqueous solution, when acidulated with sulphuric acid, has a blue fluorescence, and emits the odor of valerianic acid. When treated, first, with fresh chlorine water, and then with a slight excess of water of ammonia, it produces an emerald-green color. Water of ammonia added to the aqueous solution, throws down a white precipitate readily soluble in an excess of water of ammonia, or in ether.

The salt should not be colored, or not more than slightly colored, by undiluted sulphuric acid (abs. of foreign organic matters), nor be reddened by nitric acid (difference from morphine). The addition of test-solution of chloride of barium to the aqueous solution of the salt should not cause more than a slight precipitate (limit of sulphate).

RESINA.

RESIN.

[Colophony.]

The residue left after distilling off the volatile oil from Turpentine.

A transparent, amber-colored substance, hard, brittle, with a glossy and shallow conchoidal fracture, and having a faintly terebinthinate odor and taste. Sp. gr. 1.070 to 1.080. It melts at about 135° C. (275° F.), and is soluble in alcohol, ether, and fixed or volatile oils.

Preparations: Ceratum Resinæ. Emplastrum Resinæ.

RESINA COPAIBÆ.

RESIN OF COPAIBA.

The residue left after distilling off the volatile oil from Copaiba.

A yellowish or brownish-yellow, brittle resin, of a weak odor and taste of copaiba, and an acid reaction. Soluble in alcohol, benzol, or amylic alcohol.

RESINA JALAPÆ.

RESIN OF JALAP.

Jalap, in No. 60 powder, *one hundred parts*	100
Alcohol,	
Water, each, *a sufficient quantity.*	

Moisten the powder with *twenty-five* (25) *parts* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until *two hundred* (200) *parts* of tincture are obtained, or until the tincture ceases to produce more than a slight turbidity when dropped into water. Distil off the Alcohol, by means of a water-bath, until the tincture is reduced to *forty* (40) *parts*, and add the latter, with constant stirring, to *nine hundred* (900) *parts* of Water. When the precipitate has subsided, decant the supernatant liquid, and wash the precipitate twice, by decantation, with fresh portions of Water. Place it upon a strainer, and, having pressed out the liquid, dry the Resin with a gentle heat.

Resin of Jalap is partly soluble in ether, and the residue, when dissolved in solution of potassa, is not precipitated by the addition of diluted hydrochloric acid in excess. It is insoluble in disulphide of carbon. One part of the Resin is soluble in 50 parts of warm water of ammonia. On cooling, the solution does not gelatinize, and remains clear after being supersaturated with acids. If the ammoniacal solution is quickly evaporated, the residue is soluble in water.

RESINA PODOPHYLLI.

RESIN OF PODOPHYLLUM.

Podophyllum, in No. 60 powder, *one hundred parts*	100
Hydrochloric Acid, *one part*	1
Alcohol,	
Water, each, *a sufficient quantity.*	

Moisten the powder with *forty* (40) *parts* of Alcohol, and pack it firmly in a cylindrical percolator; then add enough Alcohol to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed, gradually adding Alcohol, until *one hundred and fifty* (150) *parts* of tincture are obtained, or until the tincture ceases to produce more than a slight turbidity when dropped into water. Distil off the Alcohol, by means of a water-bath, until the tincture is reduced to the consistence of honey, and pour it slowly, with constant stirring, into *one hundred* (100) *parts* of Water, previously cooled to a temperature below 10° C. (50° F.), and mixed with the Hydrochloric Acid. When the precipitate has subsided, decant the supernatant liquid, and wash the precipitate twice, by decantation, with fresh portions of cold Water. Spread it, in a thin layer, upon a strainer, and dry the Resin by exposure to the air, in a cool place.

Resin of Podophyllum is partly soluble in ether, and the residue, when dissolved in solution of potassa, is precipitated by the addition of diluted hydrochloric acid in excess.

RESINA SCAMMONII.

RESIN OF SCAMMONY.

Scammony, in No. 60 powder, *one hundred parts*	100
Alcohol,	
Water, each, *a sufficient quantity.*	

Digest the Scammony with successive portions of boiling Alcohol until exhausted. Mix the tinctures, and reduce the mixture to a syrupy consistence by distilling off the Alcohol. Then add the residue to *two hundred and fifty* (250) *parts* of Water, separate the precipitate formed, wash it thoroughly with Water, and dry it with a gentle heat.

Resin of Scammony is wholly soluble in ether. It dissolves in solution of potassa, and the heated solution is not precipitated by the addition of hydrochloric acid in excess.

Preparation: Extractum Colocynthidis Compositum.

RHEUM.

RHUBARB.

The root of *Rheum officinale* Baillon and of other undetermined species of *Rheum* (Nat. Ord., *Polygonaceæ*).

In cylindrical, conical or flattish segments, deprived of the dark brown, corky layer, smoothish or somewhat wrinkled, externally covered with a bright yellowish-brown powder, marked with white, elongated meshes, containing a white, rather spongy tissue, and a number of short, reddish-brown or brownish-yellow striæ; compact, hard; fracture uneven; internally white, with numerous red, irregularly curved and interrupted medullary rays, which are radially parallel only near the cambium line; of a peculiar aromatic odor; gritty between the teeth, and of a bitter, somewhat astringent taste.

Preparations: Extractum Rhei. Extractum Rhei Fluidum. Pilulæ Rhei. Pilulæ Rhei Compositæ. Pulvis Rhei Compositus. Syrupus Rhei. Tinctura Rhei. Tinctura Rhei Aromatica. Tinctura Rhei Dulcis. Vinum Rhei.

RHUS GLABRA.

RHUS GLABRA.

[RHUS GLABRUM, *Pharm.*, 1870. SUMACH.]

The fruit of *Rhus glabra* Linné (Nat. Ord., *Terebinthaceæ, Anacardieæ*).

Sub-globular, about one-eighth of an inch (3 millimeters) in diameter, drupaceous, crimson, densely hairy, containing a roundish-oblong, smooth putamen. It is inodorous, and its taste acidulous.

Preparation: Extractum Rhois Glabræ.

RHUS TOXICODENDRON.

RHUS TOXICODENDRON.

[TOXICODENDRON, *Pharm.*, 1870. POISON IVY.]

The fresh leaves of *Rhus Toxicodendron* Michaux (*Rhus Toxicodendron* and *Rhus radicans* Linné.—Nat. Ord., *Terebinthaceæ, Anacardieæ*).

Long-petiolate, trifoliate; the lateral leaflets sessile, about four inches (10 centimeters) long, obliquely ovate, pointed; the terminal leaflets stalked, ovate or oval, pointed, with a wedge-shaped base; the leaflets entire and glabrous (in *Rhus radicans* Linné), or variously notched, coarsely toothed or lobed, downy beneath (in *Rhus Toxicodendron* Linné); when dry, papery and brittle; inodorous; somewhat astringent and acrid.

The fresh leaves abound with an acrid juice which darkens when exposed to the air, and, when applied to the skin, produces inflammation and swelling. The leaves should, therefore, not be touched with bare hands.

Rhus Toxicodendron should not be confounded with the leaves of *Ptelea trifoliata* Linné, which are similar in appearance, but have all the leaflets sessile.

ROSA CENTIFOLIA.

PALE ROSE.

The petals of *Rosa centifolia* Linné (Nat. Ord., *Rosaceæ, Roseæ*).

When it is desired to keep fresh Pale Rose for some time, it may be preserved by mixing it well with half its weight of chloride of sodium, pressing the mixture in a suitable jar and keeping it, well closed, in a cool place.

Roundish-obovate and retuse, or obcordate, pink, fragrant, sweetish, slightly bitter and faintly astringent.

Preparation: Aqua Rosæ. Syrupus Sarsaparillæ Compositus.

ROSA GALLICA.

RED ROSE.

The petals of *Rosa gallica* Linné (Nat. Ord., *Rosaceæ, Roseæ*), collected before expanding.

In small cones, consisting of numerous imbricated, roundish, retuse, deep purple-colored, yellow-clawed petals, having a roseate odor and a bitterish, slightly acidulous and distinctly astringent taste.

Preparations: Pilulæ Aloes et Mastiches. Confectio Rosæ. Extractum Rosæ Fluidum. Mel Rosæ. Syrupus Rosæ.

ROSMARINUS.

ROSEMARY.

The leaves of *Rosmarinus officinalis* Linné (Nat. Ord., *Labiatæ*).

About one inch (25 millimeters) long, rigid, linear, entire, revolute, dark green above, woolly and glandular beneath; pungently aromatic, somewhat camphoraceous.

Preparation: Vinum Aromaticum.

RUBUS.

RUBUS.

[BLACKBERRY.]

The bark of the root of *Rubus villosus* Aiton, *Rubus canadensis* Linné and *Rubus trivialis* Michaux (Nat. Ord., *Rosaceæ, Dryadeæ*).

In thin, tough, flexible bands, outer surface blackish or blackish-gray, inn surface pale brownish, sometimes with strips of whitish, tasteless wood adhering; inodorous; strongly astringent, somewhat bitter.

Preparation: Extractum Rubi Fluidum.

RUBUS IDÆUS.

RASPBERRY.

The fruit of *Rubus idæus* Linné (Nat. Ord., *Rosaceæ, Dryadeæ*).

Deprived of the conical receptacle and therefore hollow at the base; hemispherical, red, finely hairy, composed of from twenty to thirty coalesced, small drupes, each one crowned with the withered style; juice red: of an agreeable odor, and pleasant, acidulous taste.

The closely allied, light red fruit of *Rubus strigosus* Michaux and the purplish-black fruit of *Rubus occidentalis* Linné may be employed in place of the above.

Preparation: Syrupus Rubi Idæi.

RUMEX.

RUMEX.

[YELLOW DOCK.]

The root of *Rumex crispus* Linné, and of other species of *Rumex* (Nat. Ord., *Polygonaceæ*).

From eight to twelve inches (20 to 30 centimeters) long, about half an inch (12 millimeters) thick, somewhat fusiform, fleshy, nearly simple, annulate above, deeply wrinkled below; externally rusty-brown, internally whitish, with fine, straight, interrupted, reddish, medullary rays, and a rather thick bark; fracture short; odor slight, peculiar; taste bitter and astringent.

Preparation: Extractum Rumicis Fluidum.

SABINA.

SAVINE.

The tops of *Juniperus Sabina* Linné (Nat. Ord., *Coniferæ*).

Short, thin, sub-quadrangular branchlets: leaves in four rows, opposite, scale-like, ovate-lanceolate, more or less acute, appressed, imbricated, on the back with a shallow groove containing an oblong or roundish gland; odor peculiar, terebinthinate; taste nauseous, resinous, and bitter.

Preparation: Extractum Sabinæ Fluidum.

SACCHARUM.

SUGAR.

$C_{12}H_{22}O_{11}$; 342. — $C_{12}H_{11}O_{11}$; 171.

The refined sugar of *Saccharum officinarum* Linné (Nat. Ord., *Graminaceæ*).

White, dry, hard, distinctly crystalline granules, permanent in the air, odorless, having a purely sweet taste, and a neutral reaction. Soluble in 0.5 part of water, and in 175 parts of alcohol at 15° C. (59° F.); in 0.2 part of boiling water, and in 28 parts of boiling alcohol; also in 80 parts of boiling, absolute alcohol, but insoluble in ether. The aqueous solution, saturated at 15° C. (59° F.), has the sp. gr. 1.345, and is miscible with alcohol in all proportions.

Neither an aqueous nor an alcoholic solution of Sugar, kept in large, well-closed and completely filled bottles, should deposit a sediment on prolonged standing (abs. of insoluble salts, foreign matters, ultramarine, Prussian blue, etc.). If a portion of about 1 Gm. of Sugar be dissolved in 10 C.c. of boiling water, then mixed with 4 or 5 drops of test-solution of nitrate of silver and about 2 C.c of water of ammonia, and quickly heated until the liquid begins to boil, not more than a slight coloration, but no black precipitate should appear in the liquid after standing at rest for five minutes (abs. of grape-sugar and of more than a slight amount of inverted sugar).

Preparations: Syrupus. (Compound Syrups, etc.)

SACCHARUM LACTIS.

SUGAR OF MILK.

$C_{12}H_{22}O_{11}.H_2O$; 360. — $C_{12}H_{11}O_{11}.HO$; 180.

A peculiar, crystalline sugar obtained from the whey of cow's milk by evaporation, and purified by re-crystallization.

White, hard, crystalline masses, yielding a white powder feeling gritty on the tongue, permanent in the air, odorless, having a faintly sweet taste, and a neutral reaction. Soluble in 7 parts of water at 15° C. (59° F.), and in 1 part of boiling water; insoluble in alcohol, ether, or chloroform. On adding to a solution of Sugar of Milk in an equal weight of boiling water, some solution of soda, the liquid turns brownish, and, on further addition of test-solution of sulphate of copper, a brick-red precipitate separates.

If 1 part of Sugar of Milk be sprinkled upon 5 parts of sulphuric acid contained in a flat-bottomed capsule, the acid should acquire not more than a greenish or reddish, but no brown or brownish-black color within one hour (abs. of cane-sugar).

SALICINUM.

SALICIN.

$C_{13}H_{18}O_7$; 286. — $C_{26}H_{18}O_{14}$; 286.

A neutral principle prepared from the bark of *Salix Helix* Linné, and of other species of *Salix* (Nat. Ord., *Salicaceæ*).

Colorless or white, silky, shining crystals, permanent in the air, odorless, having a very bitter taste, and a neutral reaction. Soluble in 28 parts of water, and in 30 parts of alcohol at 15° C. (59° F.); in 0.7 part of boiling water, and in 2 parts of boiling alcohol; insoluble in ether or chloroform. When heated to about 198° C. (388.4° F.), Salicin melts, yielding a colorless liquid, and, on ignition, it emits vapors having the odor of salicylous acid, and is finally wholly dissipated. If 1 part of Salicin be agitated with 20 parts of water and 5 parts of solution of potassa, a clear, colorless solution is obtained. Cold, concentrated sulphuric acid dissolves it with a red color; the solution, after the addition of water, becomes colorless and deposits a dark red powder insoluble in water or alcohol.

The aqueous solution of Salicin should not be precipitated by tannic or picric acids, nor by iodide of mercury and potassium (abs. of and difference from alkaloids).

SALIX.

SALIX.

[WILLOW.]

The bark of *Salix alba* Linné, and of other species of *Salix* (Nat. Ord., *Salicaceæ*).

In fragments or quills, from one-twenty-fifth to one-twelfth of an inch (1 to 2 millimeters) thick, smooth; outer surface somewhat glossy, brownish or yellowish, more or less finely warty; under the corky layer, green; inner surface brownish-white, smooth, the liber separating in thin layers; inodorous; bitter, and astringent

SALVIA.

SALVIA.

[SAGE.]

The leaves of *Salvia officinalis* Linné (Nat. Ord., *Labiatæ*).

About two inches (5 centimeters) long, petiolate, ovate-oblong, obtuse, finely crenulate, thickish, wrinkled, grayish-green, soft-hairy and glandular beneath; aromatic, bitterish, somewhat astringent.

Preparation: Vinum Aromaticum.

SAMBUCUS.

SAMBUCUS.

[ELDER.]

The flowers of *Sambucus canadensis* Linné (Nat. Ord., *Caprifoliaceæ*).

The flowers are in level-topped, five-branched cymes, have a superior, minutely five-toothed calyx and a cream-colored, wheel-shaped, five-lobed corolla, with five stamens on the short tube; odor peculiar; taste sweetish, aromatic, slightly bitter.

SANGUINARIA.

SANGUINARIA.

[BLOODROOT.]

The rhizome of *Sanguinaria canadensis* Linné (Nat. Ord., *Papaveraceæ*), collected in autumn.

About two inches (5 centimeters) long, and two-fifths of an inch (10 millimeters) thick, horizontal, cylindrical, somewhat branched, faintly annulate, wrinkled, reddish-brown; fracture short, somewhat waxy, whitish, with numerous small, red resin-cells, or of a nearly uniform, brownish-red color; bark thin; odor slight; taste persistently bitter and acrid.

Preparations: Acetum Sanguinariæ. Extractum Sanguinariæ Fluidum. Tinctura Sanguinariæ.

SANTALUM RUBRUM.

RED SAUNDERS.

The wood of *Pterocarpus santalinus* Linné (Nat. Ord., *Leguminosæ, Papilionaceæ*).

A hard, heavy, dark reddish-brown, coarsely splintery wood, deprived of the light-colored sap-wood; usually met with in chips, or as a coarse, irregular, brownish-red powder, nearly inodorous and tasteless, and not imparting any red color to water, when macerated in it.

SANTONICA.

SANTONICA.

[LEVANT WORMSEED.]

The unexpanded flower-heads of *Artemisia maritima*, var. *Stechmanniana* Besser (Nat. Ord., *Compositæ*).

Nearly one-twelfth of an inch (2 millimeters) long, oblong-ovoid, obtuse, smooth, somewhat glossy, grayish-green, after exposure to light brownish-green, with an involucre of about eighteen, closely imbricated, glandular scales, enclosing four or five rudimentary florets; odor strong, peculiar, somewhat camphoraceous; taste aromatic and bitter.

SANTONINUM.

SANTONIN.

$C_{15}H_{18}O_3$; 246. — $C_{30}H_{18}O_6$; 246.

A neutral principle prepared from Santonica.

It should be kept in dark, amber-colored vials, and should not be exposed to light.

Colorless, shining, flattened, prismatic crystals, not altered by exposure to air, but turning yellow on exposure to light; odorless and nearly tasteless when first placed in the mouth, but afterward bitter, and having a neutral reaction. Nearly insoluble in cold water; soluble in 250 parts of boiling water, in 40 parts of alcohol at 15° C. (59° F.), and in 3 parts of boiling alcohol; also soluble in 160 parts of ether, in 4 parts of chloroform, and in solutions of the alkalies. The alcoholic and ethereal solutions have an intensely bitter taste. When heated to 170° C. (338° F.), Santonin melts, and forms, if rapidly cooled, an amorphous mass which instantly crystallizes on coming in contact with a minute quantity of one of its solvents. At a higher temperature it sublimes, partly unchanged, in dense, white, irritating vapors, and is finally wholly dissipated. With alcoholic solution of potassa, Santonin yields a scarlet-red liquid, which gradually becomes colorless. From its solution in alkalies it is completely precipitated by supersaturating with an acid. Its solution in cold, concentrated sulphuric acid is at first colorless, then turns yellow, red, and brown. If water be added, immediately after it is dissolved in sulphuric acid, it is completely precipitated, and the supernatant liquor is not altered upon the addition of test-solution of bichromate of potassium, or of iodide of mercury and potassium (abs. of alkaloids).

SAPO.

SOAP.

Soap prepared from soda and olive oil.

A white or whitish solid, hard, yet easily cut when fresh, having a slight, peculiar odor free from rancidity, a disagreeable, alkaline taste and an alkaline reaction. Readily soluble in water and in alcohol.

When cut into thin slices and dried to a constant weight at a temperature of

110° C. (230° F.), it should not lose more than 34 per cent. of its weight (abs. of an undue amount of water). A four per cent. alcoholic solution should not gelatinize on cooling (abs. of animal fats). 100 parts of Soap, when dissolved in alcohol, should not leave more than 3 parts of insoluble matter (limit of carbonate of sodium, etc.), and at least 2 parts of this residue should be soluble in water (limit of silica and other accidental impurities). The aqueous solution of Soap should remain unaffected on the addition of solution of hydrosulphuric acid (abs. of metals).

Preparations: Emplastrum Saponis. Linimentum Saponis.

SAPO VIRIDIS.

GREEN SOAP.

Soap prepared from potassa and fixed oils.

A soft, greenish-yellow, unctuous jelly, having a peculiar odor, which should be free from rancidity, and an alkaline reaction. Soluble in water and in alcohol, without leaving more than a small residue of insoluble matter.

When dried at 100° C. (212° F.) to constant weight, Green Soap should not lose more than 40 per cent. of its weight (abs. of an undue amount of water), and the residue should not yield anything to warm benzol (abs. of free fats). The residue left from the alcoholic solution should be almost entirely soluble in water; and the insoluble matter finally remaining should neither effervesce with acids (abs. of insoluble carbonates), nor, after being boiled with water and cooled, should it become blue on the addition of a drop of test-solution of iodine (abs. of starch).

Preparation: Tinctura Saponis Viridis.

SARSAPARILLA.

SARSAPARILLA.

The root of *Smilax officinalis* Kunth, *Smilax medica* Schlechtendal et Chamisso, and of other undetermined species of *Smilax* (Nat. Ord., *Smilaceæ*).

About one-fifth of an inch (5 millimeters) thick, very long, cylindrical, longitudinally wrinkled, grayish-brown or orange-brown externally, white and mealy or somewhat horny internally, with numerous scattered wood-bundles forming a circular zone; nearly inodorous; taste mucilaginous, bitterish, and acrid.

The thick, woody, knotty rhizome, if present, should be removed.

Preparations: Decoctum Sarsaparillæ Compositum. Extractum Sarsaparillæ Compositum Fluidum. Extractum Sarsaparillæ Fluidum. Syrupus Sarsaparillæ Compositus.

SASSAFRAS.

SASSAFRAS.

The bark of the root of *Sassafras officinalis* Nees (Nat. Ord., *Lauraceæ*).

In irregular fragments, deprived of the gray, corky layer; bright rust-brown, soft, fragile, with a short, corky fracture; strongly fragrant; sweetish, aromatic, and somewhat astringent.

SASSAFRAS MEDULLA.

SASSAFRAS PITH.

The pith of *Sassafras officinalis* Nees (Nat. Ord., *Lauraceæ*).

In slender, cylindrical pieces, often curved or coiled, light, spongy, white, inodorous, insipid. Macerated in water it forms a mucilaginous liquid, which is not precipitated on the addition of alcohol.

Preparation: Mucilago Sassafras.

SCAMMONIUM.

SCAMMONY.

A resinous exudation from the root of *Convolvulus Scammonia* Linné (Nat. Ord., *Convolvulaceæ*).

In irregular, angular pieces or circular cakes, greenish-gray or blackish, internally porous, and of a resinous lustre, breaking with an angular fracture; odor peculiar, somewhat cheese-like; taste slightly acrid; powder gray or greenish-gray.

When triturated with water, Scammony yields a greenish emulsion; it does not effervesce on the addition of diluted hydrochloric acid, and the decoction, when cold, does not assume a blue color on the addition of test-solution of iodine. Ether dissolves at least seventy-five per cent. of it; and, when the ether has been evaporated, the residue, dissolved in hot solution of potassa, is not precipitated by diluted sulphuric acid.

Preparation: Resina Scammonii.

SCILLA.

SQUILL.

The sliced bulb of *Urginea Scilla* Steinheil (Nat. Ord., *Liliaceæ*).

In narrow segments, about two inches (5 centimeters) long, slightly translucent, yellowish-white or reddish, brittle and pulverizable when dry, flexible after exposure to damp air; inodorous; mucilaginous, bitter, and acrid.

Preparations: Acetum Scillæ. Extractum Scillæ Fluidum. Syrupus Scillæ Compositus. Tinctura Scillæ.

SCOPARIUS.

SCOPARIUS.

[Broom.]

The tops of *Sarothamnus Scoparius* Koch (Nat. Ord., *Leguminosæ, Papilionaceæ*).

In thin, flexible twigs, pentangular, winged, nearly smooth, tough, usually free from leaves; of a peculiar odor when bruised; disagreeably bitter.

SCUTELLARIA.

SCUTELLARIA.

[SCULLCAP.]

Scutellaria lateriflora Linné (Nat. Ord., *Labiatæ*).

About twenty inches (50 centimeters) long, smooth; stem quadrangular, branched; leaves opposite, petiolate, about two inches (5 centimeters) long, ovate-lanceolate or ovate-oblong, serrate; flowers in axillary, one-sided racemes, with a pale blue corolla and a two-lipped calyx, closed in fruit, the upper lip helmet-shaped; odor slight; taste bitterish.

Preparation: Extractum Scutellariæ Fluidum.

SENEGA.

SENEGA.

The root of *Polygala Senega* Linné (Nat. Ord., *Polygalaceæ*).

About four inches (10 centimeters) long, with a very knotty crown, and spreading, tortuous branches, keeled when dry, fleshy and round after having been soaked in water; externally yellowish-gray or brownish-yellow; bark thick, whitish within, enclosing an irregular, porous, yellowish wood; odor slight, but unpleasant; taste sweetish, afterward acrid.

Preparations: Abstractum Senegæ. Extractum Senegæ Fluidum. Syrupus Scillæ Compositus.

SENNA.

SENNA.

The leaflets of *Cassia acutifolia* Delile (Alexandria Senna), and of *Cassia elongata* Lémaire-Lisancourt (India Senna); (Nat. Ord., *Leguminosæ, Cæsalpinieæ*).

Alexandria Senna consists of leaflets about one inch (25 millimeters) long, lanceolate, or lance-oval, sub-coriaceous, brittle, rather pointed, unequally oblique at the base, entire, grayish-green, nearly smooth, of a peculiar odor, and a nauseous, bitter taste.

It should be freed from stalks, and from Argel leaves (the leaves of *Solenostemma Argel* Hayne), which are frequently present; these leaves are thicker, one-veined, glaucous and even at the base.

India Senna consists of leaflets nearly two inches (5 centimeters) long, acute, unequally oblique at the base, entire, dull green, slightly pubescent, of a peculiar odor, and a mucilaginous, bitter taste.

It should be freed from stalks, discolored leaves, and other admixtures.

Preparations: Confectio Sennæ. Extractum Sennæ Fluidum. Infusum Sennæ Compositum. Pulvis Glycyrrhizæ Compositus. Syrupus Sarsaparillæ Compositus. Syrupus Sennæ.

SERPENTARIA.

SERPENTARIA.

[VIRGINIA SNAKEROOT.]

The rhizome and rootlets of *Aristolochia Serpentaria* Linné, and of *Aristolochia reticulata* Nuttall (Nat. Ord., *Aristolochiaceæ*).

The rhizome is about one inch (25 millimeters) long, thin, bent; on the upper side with approximate, short stem-remnants; on the lower side with numerous, thin, branching rootlets about four inches (10 centimeters) long; dull yellowish-brown, internally whitish; the wood-rays of the rhizome longest on the lower side; odor aromatic, camphoraceous; taste warm, bitterish, and camphoraceous.

The rootlets of *Aristolochia reticulata* are coarser, longer, and less interlaced than those of *Aristolochia Serpentaria.*

Preparations: Extractum Serpentariæ Fluidum. Tinctura Cinchonæ Composita. Tinctura Serpentariæ.

SEVUM.

SUET.

The internal fat of the abdomen of *Ovis Aries* Linné (Class, *Mammalia;* Order, *Ruminantia*), purified by melting and straining.

Suet should be kept in well-closed vessels impervious to fat. It should not be used after it has become rancid.

A white, smooth, solid fat, nearly inodorous, gradually becoming rancid on exposure to air, having a bland taste, and a neutral reaction. Soluble in 44 parts of boiling alcohol, in about 60 parts of ether, and slowly soluble in 2 parts of benzin. From its solution in the latter, kept in a stoppered flask, it slowly separates in a crystalline form on standing. It melts between 45° and 50° C. (113° and 122° F.), and congeals between 37° and 40° C. (98.6° and 104° F.).

SINAPIS ALBA.

WHITE MUSTARD.

The seed of *Sinapis alba* Linné (*Brassica alba* Hooker filius et Thompson.—Nat. Ord., *Cruciferæ, Siliquosæ*).

About one-twelfth of an inch (2 millimeters) in diameter, almost globular, with a circular hilum; testa yellowish, finely pitted, hard; embryo oily, with a curved radicle, and two cotyledons, one folded over the other; inodorous; taste pungent and acrid.

SINAPIS NIGRA.

BLACK MUSTARD.

The seed of *Sinapis nigra* Linné (*Brassica nigra* Koch.—Nat. Ord., *Cruciferæ, Siliquosæ*).

About one-twenty-fifth of an inch (1 millimeter) in diameter, almost globular, with a circular hilum; testa blackish-brown, finely pitted, hard; embryo oily, with a curved radicle, and two cotyledons, one folded over the other; inodorous when dry, but when moist, of a pungent, penetrating, irritating odor; taste pungent and acrid.

Preparation: Charta Sinapis.

SODA.

SODA.

$NaHO$; 40. — NaO,HO; 40.

Soda should be kept in well-stopped bottles made of hard glass.

A white, hard, opaque solid, generally in form of fibrous pieces, or of white cylindrical pencils, deliquescent in moist air, but in dry air becoming dry and efflorescent, odorless, having an intensely acrid and caustic taste, and a strongly alkaline reaction. Soluble in 1.7 part of water at 15° C. (59° F.), and in 0.8 part of boiling water; very soluble in alcohol. When heated nearly to a red heat, it melts, forming an oily liquid. At a strong red heat, it is slowly volatilized unchanged. Its aqueous solution dropped into solution of tartaric acid, so that the latter remains in excess, produces neither a precipitate nor cloudiness.

An aqueous solution of Soda should be colorless (abs. of organic matter), and, after being supersaturated with nitric acid, should not be more than slightly clouded on the addition of test-solution of nitrate of silver (limit of chloride), or of chloride of barium (limit of sulphate). Dropped into an acid, it should not produce more than a faint effervescence of isolated bubbles (limit of carbonate). If Soda be dissolved in 2 parts of water and the solution dropped into alcohol, not more than a slight precipitate should make its appearance (limit of silica or of carbonate).

To neutralize 2.0 Gm. of Soda should require not less than 45 C.c of the volumetric solution of oxalic acid (corresponding to at least 90 per cent. of absolute hydrate of sodium).

Preparation: Liquor Sodæ.

SODII ACETAS.

ACETATE OF SODIUM.

$NaC_2H_3O_2.3H_2O$; 136. — $NaO,C_4H_3O_3,6HO$; 136.

Acetate of Sodium should be kept in well-stopped bottles.

Large, colorless, transparent, monoclinic prisms, efflorescent in dry air, odorless, having a saline, bitter taste, and a neutral or faintly alkaline reaction. Soluble in 3 parts of water, and in 30 parts of alcohol at 15° C. (59° F.); in 1 part of boiling water and in 2 parts of boiling alcohol. When heated, the salt melts, and on further heating loses all its water (39.7 per cent.), and falls into a white powder. At a higher temperature this powder again melts, and, at red heat, it is decomposed with the evolution of empyreumatic, inflammable vapors, leaving a blackened residue of an alkaline reaction, which imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. On adding sulphuric acid to a concentrated solution of the salt, and heating, vapor of acetic acid is evolved. A solution of the salt is rendered deep red by ferric chloride, and, on boiling, a red precipitate is formed.

A two per cent. aqueous solution of the salt, acidulated with acetic acid, should yield no precipitate, or at most only a faint opalescence, on the addition of test-solution of nitrate of silver (limit of chloride), or of chloride of barium (limit of sulphate). If a solution of the salt, acidulated with nitric acid, is evaporated to dryness, the residue should be completely soluble in water (abs. of silica), and the solution should remain unaffected by hydrosulphuric acid or sulphide of ammonium (abs. of metals), and should yield no precipitate, or at most only a trace, on the addition of test-solution of carbonate of sodium (limit of alkaline earths). Fragments of the salt added to acetic acid, should produce no effervescence (abs. of carbonate), and, when sprinkled upon colorless, concentrated sulphuric acid, should not impart to it any color (abs. of organic impurities).

If 3.4 Gm. of Acetate of Sodium be ignited until gases cease to be evolved, the alkaline residue should require for complete neutralization 25 C.c. of the volumetric solution of oxalic acid (corresponding to 100 per cent. of pure Acetate of Sodium).

SODII ARSENIAS.

ARSENIATE OF SODIUM.

$Na_2HAsO_4.7H_2O$; 311.9. — $2NaO,HO,AsO_5.14HO$; 311.9.

Arseniate of Sodium should be kept in well-stopped vials.

Colorless, transparent, prismatic crystals, slightly efflorescent in dry air, odorless, having a mild, feebly alkaline taste, and a faintly alkaline reaction. Soluble in 4 parts of water, and very slightly soluble in alcohol at 15° C. (59° F.); very soluble in boiling water, and soluble in 60 parts of boiling alcohol. When gently heated, the salt loses 28.8 per cent. of its weight (water of crystallization), and, if further heated to near 148° C. (298.4° F.), it loses the remainder of its water (11.5 per cent.). A fragment of the salt imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. The aqueous solution of the salt yields a white precipitate with test-solutions of chloride of barium, chloride of calcium, or sulphate of zinc, and a brick-red precipitate with test-solution of nitrate of silver, all of which precipitates are soluble in nitric acid.

The cold, aqueous solution of the salt, acidulated with hydrochloric acid, should not at once produce a yellow precipitate or assume a yellow color, on the addition of solution of hydrosulphuric acid (abs. of arsenite).

Preparation: Liquor Sodii Arseniatis.

SODII BENZOAS.

BENZOATE OF SODIUM.

$NaC_7H_5O_2.H_2O$; 162. — $NaO,C_{14}H_5O_3.2HO$; 162.

Benzoate of Sodium should be kept in well-stopped bottles.

A white, semi-crystalline or amorphous powder, efflorescent on exposure to air, odorless or having a faint odor of benzoin, of a sweetly astringent taste free from bitterness, and having a neutral reaction. Soluble in 1.8 parts of water, and in 45 parts of alcohol at 15° C. (59° F.); in 1.3 parts of boiling water, and in 20 parts of boiling alcohol. When heated, the salt melts, emits vapors having the odor of benzoic acid, then chars and finally leaves a blackened residue of an alkaline reaction, which imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. On mixing an aqueous solution of the salt with a dilute solution of ferric sulphate, a flesh-colored precipitate is produced.

If the benzoic acid be separated from the salt by precipitating it with diluted nitric acid, and thoroughly washed, it should respond to the tests of purity mentioned under *Acidum Benzoicum*.

SODII BICARBONAS.

BICARBONATE OF SODIUM.

$NaHCO_3$; 84. — $NaO,HO,2CO_2$; 84.

A white, opaque powder, permanent in the air, odorless, having a cooling, mildly saline taste, and a slightly alkaline reaction. Soluble in 12 parts of water at 15° C. (59° F.), and insoluble in alcohol. It is decomposed by hot water. When heated to about 70° C. (158° F.), the salt begins to lose moisture and carbonic acid gas, and, on continued heating, loses about 37 per cent. in weight. At a red heat, the anhydrous residue melts; and a fragment of the salt imparts an intense yellow color to a non-luminous flame. The aqueous solution, on being heated, disengages carbonic acid, and finally contains carbonate of sodium.

A one per cent. solution of the salt, supersaturated with nitric acid, should yield at most only a slight opalescence with test-solution of nitrate of silver (limit of chloride), or chloride of barium (limit of sulphate). On heating a small quantity of the salt with solution of soda, no ammoniacal vapor should be given off. If 2 Gm. of the salt be dissolved, with very gentle agitation, in 30 C.c. of cold water, and the solution added to a cold solution of 0.3 Gm. of mercuric chloride in 6 C.c. of water, only a white cloud, but neither a red precipitate nor a red color should make its appearance within three minutes (abs. of more than about 3 per cent. of carbonate).

To neutralize 4.2 Gm. of Bicarbonate of Sodium should require not less than 49.5 C.c. of the volumetric solution of oxalic acid (corresponding to at least 99 per cent. of Bicarbonate of Sodium).

Preparations: Mistura Rhei et Sodæ. Trochisci Sodii Bicarbonatis.

SODII BICARBONAS VENALIS.

COMMERCIAL BICARBONATE OF SODIUM.

$NaHCO_3$; 84. — NaO,HO,CO_2 ; 84.

Corresponding in physical properties and reactions of identity to the preceding (see *Sodii Bicarbonas*).

A one per cent. aqueous solution of the salt, acidulated with nitric acid, should not yield an immediate precipitate with test-solution of nitrate of silver (limit of chloride), or of chloride of barium (limit of sulphate). If a portion of the salt be agitated with a quantity of water insufficient to dissolve it, the cold filtrate should not yield more than a slight precipitate with a concentrated solution of sulphate of magnesium (limit of carbonate).

To neutralize 4.2 Gm. of the salt should require not less than 47.5 C.c. of the volumetric solution of oxalic acid (corresponding to at least 95 per cent. of Bicarbonate of Sodium).

SODII BISULPHIS.

BISULPHITE OF SODIUM.

$NaHSO_3$; 104. — $NaO,HO,2SO_2$; 104.

Bisulphite of Sodium should be kept in well-stopped bottles.

Opaque, prismatic crystals, or a crystalline or granular powder, slowly oxidized and losing sulphurous acid on exposure to air, having a faint, sulphurous odor, a disagreeable, sulphurous taste, and an acid reaction. Soluble in 4 parts of water, and in 72 parts of alcohol at 15° C. (59° F.); in 2 parts of boiling water, and in 49 parts of boiling alcohol. When strongly heated, the salt decrepitates and is converted into sulphur and sulphate of sodium. A small fragment of the salt imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. On adding hydrochloric acid to an aqueous solution of the salt, sulphurous vapors are evolved, and the solution does not become cloudy (difference from hyposulphite).

A one per cent. aqueous solution of the salt, acidulated with hydrochloric acid, should not yield more than a faint cloudiness with test-solution of chloride of barium (limit of sulphate).

If 0.26 Gm. of the salt be dissolved in 10 C.c. of water, and a little gelatinized starch added, at least 45 C.c. of the volumetric solution of iodine should be required before a permanent blue tint appears after stirring (corresponding to at least 90 per cent. of pure Bisulphite of Sodium)

SODII BORAS.

BORATE OF SODIUM.

$Na_2B_4O_7.10H_2O$; 382. — $NaO,2BO_3.10HO$; 191.

[Borax.]

Colorless, transparent, shining, monoclinic prisms, slightly efflorescent in dry air, odorless, having a mild, cooling, sweetish, afterward somewhat alkaline taste, and an alkaline reaction. Soluble in 16 parts of water at 15° C. (59° F.), and in 0.5 part of boiling water; insoluble in alcohol. At 80° C. (176° F.) it is soluble in 1 part of glycerin. When heated, the powdered salt begins to lose water, then melts, on further heating swells up and forms a white, porous mass, which, at a red heat, fuses to a colorless glass, with complete loss of water of crystallization (47.1 per cent.). A fragment of the salt imparts an intense yellow color to a non-luminous flame. The saturated aqueous solution, on the addition of sulphuric acid, deposits shining crystalline scales, which impart a green color to the flame of alcohol.

The aqueous solution should not effervesce with acids (abs. of carbonate), and should not be precipitated nor be rendered cloudy by test-solution of carbonate of sodium (abs. of alkaline earths), nor be affected by hydrosulphuric acid (abs. of metals). A one per cent. solution, strongly acidulated with nitric acid, should not be rendered turbid by the addition of a few drops of test-solution of chloride of barium (limit of sulphate), or nitrate of silver (limit of chloride).

SODII BROMIDUM.

BROMIDE OF SODIUM.

NaBr ; 102.8. — *NaBr ;* 102.8.

Bromide of Sodium should be kept in well-stopped bottles.

Small, colorless or white, monoclinic crystals, or a crystalline powder, permanent in dry air, odorless, having a saline, slightly bitter taste, and a neutral or faintly alkaline reaction. Soluble in 1.2 parts of water, and in 13 parts of alcohol at 15° C (59° F.); in 0.5 part of boiling water, and in 11 parts of boiling alcohol. When heated to a dull red heat, the salt melts without losing weight. At a full red heat, it is slowly volatilized without decomposition. A fragment of the salt imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. If disulphide of carbon be poured into a solution of the salt, then chlorine water added drop by drop, and the whole agitated, the disulphide will acquire a yellow or yellowish-brown color without a violet tint.

If diluted sulphuric acid be dropped on a portion of the salt, the latter should not at once assume a yellow color (abs. of bromate). If 1 Gm. of the salt be dissolved in 10 C.c. of water, some gelatinized starch added, and then a few drops of chlorine water be carefully poured on top, no blue zone should make its appearance at the line of contact of the two liquids (abs. of iodide). On adding to 1 Gm. of the salt, dissolved in 20 C.c. of water, 5 or 6 drops of test-solution of nitrate of barium, no immediate cloudiness or precipitate should make its appearance (limit of sulphate). If 3 Gm. of the well-dried salt be dissolved in distilled water to 100 C.c., and 10 C.c. of this solution be treated with a few drops of test-solution of bichromate of potassium, and then volumetric solution of nitrate of silver be added, not more than 29.8 C.c. of the latter should be consumed before the red color ceases to disappear on stirring (abs. of more than 3 per cent. of chloride).

1 Gm. of the salt, when completely precipitated by nitrate of silver, yields, if perfectly pure, 1.824 Gm. of dry bromide of silver.

SODII CARBONAS.

CARBONATE OF SODIUM.

$Na_2CO_3.10H_2O$; 286. — $NaO,CO_2.10HO$; 143.

Carbonate of Sodium should be kept in well-closed vessels.

Large, colorless, monoclinic crystals, rapidly efflorescing in dry air and falling into a white powder, odorless, having a sharp, alkaline taste, and an alkaline reaction. Soluble in 1.6 parts of water at 15° C. (59° F.), in 0.09 part at 38° C. (100.4° F.), and in 0.25 part of boiling water; insoluble in alcohol. When heated to about 35° C. (95° F.), the salt melts; on further heating, all the water (62.9 per cent.) gradually escapes, and, at a red heat, the anhydrous residue fuses. A fragment of the salt imparts an intense yellow color to a non-luminous flame. The aqueous solution strongly effervesces on the addition of an acid.

The aqueous solution should be free from suspended or colored impurities, and, after being supersaturated with nitric acid, should not yield more than a trifling precipitate with test-solution of nitrate of silver (limit of chloride), or of chloride of barium (sulphate). The aqueous solution should remain unaffected by hydrosulphuric acid, either before or after being supersaturated with hydrochloric acid (abs. of metals). A solution of the salt acidified by the last-named acid, when supersaturated with ammonia and boiled, should not yield a gelatinous precipitate (alumina).

To neutralize 7.15 Gm. of Carbonate of Sodium should require not less than 49 C.c. of the volumetric solution of oxalic acid (corresponding to at least 98 per cent. of pure, crystallized Carbonate of Sodium)

SODII CARBONAS EXSICCATUS.

DRIED CARBONATE OF SODIUM.

Carbonate of Sodium, *two hundred parts* 200

To make *one hundred parts* 100

Break the salt into small fragments, allow it to effloresce by exposure to warm air for several days, then expose it to a temperature of about 45° C. (113° F.), until it has been converted into a white powder weighing *one hundred* (100) *parts*.

Pass the powder through a sieve and preserve it in well-stopped bottles.

A white, very hygroscopic powder, responding to the tests and reactions mentioned under *Sodii Carbonas.*

To neutralize 2.65 Gm. of Dried Carbonate of Sodium should require not less than 36.3 C.c. of the volumetric solution of oxalic acid (corresponding to at least 72.6 per cent. of anhydrous carbonate of sodium).

SODII CHLORAS.

CHLORATE OF SODIUM.

$NaClO_3$; 106.4. — NaO,ClO_5; 106.4.

Chlorate of Sodium should be kept in well-stopped bottles, and should not be triturated with readily oxidizable or combustible substances.

Colorless, transparent tetrahedrons of the regular system, permanent in dry air, odorless, having a cooling, saline taste, and a neutral reaction. Soluble in 1.1 parts of water, and in 40 parts of alcohol at 15° C. (59° F.); in 0.5 part of boiling water, and in 43 parts of boiling alcohol. When heated, the salt melts and afterward gives off a portion of its oxygen, finally leaving a residue of a neutral reaction completely soluble in water. A fragment of this residue imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass; and its aqueous solution, acidulated with nitric acid, yields, with test-solution of nitrate of silver, a white precipitate soluble in ammonia.

The aqueous solution of the salt should not produce a white, crystalline precipitate on the addition of a saturated solution of bitartrate of sodium (abs. of potassium). A dilute, aqueous solution should yield no precipitate with test-solution of chloride of barium (sulphate), or of oxalate of ammonium (calcium), and at most only a faint cloudiness with test-solution of nitrate of silver (limit of chloride).

SODII CHLORIDUM.

CHLORIDE OF SODIUM.

$NaCl$; 58.4. — $NaCl$; 58.4.

White, shining, hard, cubical crystals, or a crystalline powder, permanent in the air, odorless, having a purely saline taste, and a neutral reaction. Soluble in 2.8 parts of water at 15° C. (59° F.), and in 2.5 parts of boiling water; almost insoluble in alcohol. When heated, the salt decrepitates; at a red heat it melts, and at a still higher temperature it is slowly volatilized with partial decomposition. A fragment of the salt imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. The aqueous solution, acidulated with nitric acid, yields, with test-solution of nitrate of silver, a white precipitate soluble in ammonia.

An aqueous solution of the salt should yield no precipitate or cloudiness on the addition of test-solution of carbonate of sodium (alkaline earths), chloride of barium (sulphate), or hydrosulphuric acid or sulphide of ammonium (metals). If 2 Gm. of the salt be digested with 20 Gm. of alcohol, the cold and filtered alcoholic solution evaporated to dryness, the residue dissolved in water, a little gelatinized starch added, and subsequently chlorine water, drop by drop, no colored tint should make its appearance at the line of contact of the two liquids (abs. of iodide or bromide).

1 Gm. of Chloride of Sodium, when completely precipitated by nitrate of silver, should yield 2.450 Gm. of dry chloride of silver.

SODII HYPOPHOSPHIS.

HYPOPHOSPHITE OF SODIUM.

$NaH_2PO_2.H_2O$; 106.— $NaO,2HO,PO.2HO$; 106.

Hypophosphite of Sodium should be kept in well-stopped bottles.

Small, colorless or white, rectangular plates, or a white, granular powder, deliquescent on exposure to air, odorless, having a sweetish, saline taste, and a neutral reaction. Soluble in 1 part of water, and in 30 parts of alcohol at 15° C. (59° F.); in 0.12 part of boiling water, and in 1 part of boiling alcohol. When heated in a dry test-tube, the salt loses water, then evolves a spontaneously inflammable gas (phosphoretted hydrogen), burning with a bright, yellow flame. A fragment of the salt imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. On triturating or heating the salt with an oxidizing agent, the mixture will explode. The aqueous solution yields, with test-solution of nitrate of silver, a white precipitate, which rapidly turns brown and black; and, when acidulated with hydrochloric acid, and added to excess of test-solution of mercuric chloride, it first produces a white precipitate of calomel, and, on further addition, metallic mercury separates.

The aqueous solution of the salt should not effervesce on the addition of an acid (abs. of carbonate), and should not be precipitated nor be rendered cloudy by test-solution of oxalate of ammonium (abs. of calcium), nor by a saturated solution of bitartrate of sodium (abs. of potassium). After being acidulated with hydrochloric acid, it should not produce a white precipitate or cloudiness with test-solution of chloride of barium (sulphate). On mixing the aqueous solution with test-solution of magnesium, not more than a slight cloudiness should make its appearance (limit of phosphate).

Preparation: Syrupus Hypophosphitum.

SODII HYPOSULPHIS.

HYPOSULPHITE OF SODIUM.

$Na_2S_2O_3.5H_2O$; 248. — $NaO,S_2O_2.5HO$; 124.

Hyposulphite of Sodium should be kept in well-stopped bottles.

Large, colorless, transparent, monoclinic prisms or plates, efflorescent in dry air, odorless, having a cooling, somewhat bitter and sulphurous taste, and a neutral or faintly alkaline reaction. Soluble in 1.5 parts of water at 15° C. (59° F.), and in 0.5 part of boiling water, in the latter case with partial decomposition; insoluble in alcohol. When rapidly heated to about 50° C. (122° F.), the salt melts; when slowly heated until it is effloresced, and afterward to 100° C. (212° F.), it loses all its water (36.3 per cent.), and at a low red heat it is decomposed. A fragment of the salt imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. The aqueous solution dissolves chloride or oxide of silver, and discharges the color of solution of iodized starch and of solution of iodine. Sulphuric acid added to the solution gives rise to the odor of burning sulphur and causes a white precipitate of sulphur (difference from bisulphite and sulphite).

A solution of the salt in 80 parts of water should not be rendered cloudy by a few drops of test-solution of chloride of barium (abs. of sulphate), and a concentrated solution should not effervesce when added to diluted acetic acid (abs. of carbonate).

A solution of 2 Gm. of the salt in 10 Gm. of water, agitated for a short time with 1 Gm. of iodine, should yield a colorless liquid, with at most only a faint, white opalescence (corresponding to about 98 per cent. of pure Hyposulphite of Sodium).

SODII IODIDUM.

IODIDE OF SODIUM.

NaI; 149.6. — *NaI;* 149.6.

Iodide of Sodium should be kept in well-stopped bottles.

Minute, colorless or white, monoclinic crystals, or a crystalline powder, deliquescent on exposure to air, odorless, having a saline and slightly bitter taste, and a neutral or faintly alkaline reaction. Soluble in 0.6 part of water, and in 1.8 parts of alcohol at 15° C. (59° F.); in 0.3 part of boiling water, and in 1.4 parts of boiling alcohol. At a dull red heat, the salt melts without losing weight. At a full red heat, it is slowly volatilized with partial decomposition. A fragment of the salt imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. If disulphide of carbon be poured into a solution of the salt, then chlorine water added drop by drop, and the whole agitated, the disulphide of carbon will acquire a violet color.

The aqueous solution of the salt, mixed with gelatinized starch, and afterward with diluted hydrochloric acid, should not at once acquire a blue color (abs. of iodate). If 1 Gm. of the salt be dissolved in 10 C.c. of water of ammonia, then shaken with a solution of 1.2 Gm. of nitrate of silver in 20 C.c. of water, and the filtrate be supersaturated with 7 C c. of nitric acid, no cloudiness should make its appearance within ten minutes (abs. of more than about 0.5 per cent. of chloride or bromide). On adding to 1 Gm. of the salt, dissolved in 20 C.c. of water, 5 or 6 drops of test-solution of nitrate of barium, no immediate cloudiness or precipitate should make its appearance (limit of sulphate).

1 Gm. of the powdered and dried salt, when completely precipitated by nitrate of silver, yields, if perfectly pure, 1.566 Gm. of dry iodide of silver.

SODII NITRAS.

NITRATE OF SODIUM.

$NaNO_3$; 85. — NaO,NO_5; 85.

Nitrate of Sodium should be kept in well-stopped bottles.

Colorless, transparent, rhombohedral crystals, slightly deliquescent in damp air, odorless, having a cooling, saline and slightly bitter taste, and a neutral reaction. Soluble in 1.3 parts of water at 15° C. (59° F.), and in 0.6 part of boiling water; scarcely soluble in cold, but soluble in 40 parts of boiling alcohol. When heated to about 312° C. (594° F.), the salt melts, and, on further heating, it is decomposed, giving off oxygen and leaving a residue which emits nitrous vapors on the addition of sulphuric acid. Thrown upon red hot coals, the salt deflagrates. A fragment of the salt imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass.

The aqueous solution of the salt should remain unaffected by hydrosulphuric acid or sulphide of ammonium (abs. of metals), also by carbonate of ammonium (abs. of alkaline earths), or a saturated solution of bitartrate of sodium (abs. of potassium). If previously acidulated with nitric acid, it should yield no precipitate or cloudiness with test-solution of nitrate of barium (sulphate), and at most only a faint opalescence with test-solution of nitrate of silver (limit of chloride). On adding to a solution of the salt a few drops of solution of hydrosulphuric acid, then some gelatinized starch, and carefully pouring a few drops of chlorine water on top, no blue zone should make its appearance at the line of contact of the two liquids (abs. of iodide).

If 1 Gm. of Nitrate of Sodium be heated with 1 Gm. of concentrated sulphuric acid, and the mixture be kept at a red heat until it ceases to lose weight, the residue should weigh 0.835 Gm.

SODII PHOSPHAS.

PHOSPHATE OF SODIUM.

$Na_2HPO_4.12H_2O$; 358. — $2NaO,HO,PO_5.24HO$; 358.

Phosphate of Sodium should be kept in well-stopped bottles, in a cool place.

Large, colorless, transparent, monoclinic prisms, speedily efflorescing and becoming opaque on exposure to air, odorless, having a cooling, saline and feebly alkaline taste, and a slightly alkaline reaction. Soluble in 6 parts of water at 15° C. (59° F.), and in 2 parts of boiling water ; insoluble in alcohol. When heated to about 40° C. (104° F.), the salt melts, yielding a clear liquid, and, on continued heating to near 100° C. (212° F.), it loses all its water of crystallization (60.3 per cent.). A fragment of the salt imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. The aqueous solution of the salt yields, with test-solution of magnesium, a white, crystalline precipitate soluble in acids.

The aqueous solution should not effervesce on the addition of an acid (abs. of carbonate). Acidified with hydrochloric acid, it should remain unaffected by hydrosulphuric acid or sulphide of ammonium (abs. of metals) and, when acidified with nitric acid, it should not yield more than a faint cloudiness with test-solution of nitrate of barium (limit of sulphate), or nitrate of silver (limit of chloride).

If 1 Gm. of Phosphate of Sodium be completely precipitated by test-mixture of magnesium, the washed, dried, and ignited precipitate should weigh 0.31 Gm.

SODII PYROPHOSPHAS.

PYROPHOSPHATE OF SODIUM.

$Na_4P_2O_7.10H_2O$; 446. — $2NaO,PO_5.10HO$; 223.

Colorless, translucent, monoclinic prisms, permanent in the air, odorless, having a cooling, saline and feebly alkaline taste, and a slightly alkaline reaction. Soluble in 12 parts of water at 15° C. (59° F.), and in 1.1 parts of boiling water ; insoluble in alcohol. When heated, the salt loses its water of crystallization (40.36 per cent.) ; at a higher temperature it fuses, and, on cooling, concretes to a crystalline mass. A fragment of the salt imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. Its aqueous solution yields, with excess of test-solution of nitrate of silver, a white precipitate and a neutral filtrate.

The aqueous solution of the salt should not effervesce on the addition of an acid (abs. of carbonate). Acidified with hydrochloric acid, it should remain unaffected by hydrosulphuric acid or sulphide of ammonium (abs. of metals), and, when acidified with nitric acid, it should not yield more than a faint opalescence with test-solution of nitrate of barium (limit of sulphate), or nitrate of silver (limit of chloride).

SODII SALICYLAS.

SALICYLATE OF SODIUM.

$2NaC_7H_5O_3.H_2O$; 338. — $NaO,HO,C_{14}H_4O_4.HO$; 169.

Small, white, crystalline plates, or a crystalline powder, permanent in the air, odorless, having a sweetish, saline and mildly alkaline taste, and a feebly acid reaction. Soluble in 1.5 parts of water, and in 6 parts of alcohol at 15° C. (59° F.) ; very soluble in boiling water, and in boiling alcohol. When heated, the salt gives off inflammable vapors and leaves an alkaline residue amounting to between 30 and 31 per cent. of the original weight, which effervesces with acids, and imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. On supersaturating the aqueous solution with sulphuric acid, a bulky, white precipitate is obtained, which is soluble in boiling water, from which it crystallizes on cooling; also soluble in ether, and striking an intense, violet color with ferric salts.

The aqueous solution should be colorless and should not effervesce on the addition of acids (abs. of carbonate). Agitated with about 15 parts of concentrated sulphuric acid, the salt should not impart color to the acid within fifteen minutes (abs of foreign organic matter). If a solution of 1 Gm. of the salt in a mixture of 50 C.c. of alcohol and 25 C.c. of water be acidulated with nitric acid, the filtered solution should yield no precipitate, nor be rendered turbid on the addition of a few drops of test-solution of chloride of barium (abs. of sulphate), or of nitrate of silver (abs. of chloride).

SODII SANTONINAS.

SANTONINATE OF SODIUM.

$2NaC_{15}H_{19}O_4.7H_2O$; 698. — $NaO,HO,C_{30}H_{18}O_6.7HO$; 349.

Santoninate of Sodium should be kept in dark amber-colored, well-stopped vials, and should not be exposed to light.

Colorless, transparent, tabular, rhombic crystals, slowly colored yellow by exposure to light, slightly efflorescent in dry air, odorless, having a mildly saline and somewhat bitter taste, and a slightly alkaline reaction. Soluble in 3 parts of water, and in 12 parts of alcohol at 15° C. (59° F.); in 0.5 part of boiling water, and in 3.4 parts of boiling alcohol. When heated to 100° C. (212° F.), until it ceases to lose weight, the salt loses 18 per cent. of its weight (water of crystallization). At a higher heat it chars and finally leaves an alkaline residue, which imparts an intense yellow color to a non-luminous flame. The aqueous solution, on the addition of hydrochloric acid, deposits a crystalline precipitate which is soluble in chloroform, and which yields, with alcoholic solution of potassa, a scarlet-red liquid gradually becoming colorless.

A five per cent. aqueous solution of the salt should not be precipitated nor be rendered turbid by test-solution of carbonate of sodium (abs. of alkaline earths), nor by picric or tannic acids (abs. of alkaloids).

Preparation: Trochisci Sodii Santoninatis.

SODII SULPHAS.

SULPHATE OF SODIUM.

$Na_2SO_4.10H_2O$; 322. — $NaO,SO_3.10HO$; 161.

[GLAUBER'S SALT.].

Sulphate of Sodium should be kept in well-stopped bottles.

Large, colorless, transparent, monoclinic prisms, rapidly efflorescing on exposure to air, and ultimately falling into a white powder, odorless, having a cooling, saline and somewhat bitter taste, and a neutral reaction. Soluble in 2.8 parts of water at 15° C. (59° F.), in 0.25 part of water at 33° C. (91.4° F.), and in 0.4 part of boiling water; insoluble in alcohol. When heated to about 30° C. (86° F.), the salt melts, and, on further heating, gradually loses all its water (55.9 per cent.). At a red heat, the anhydrous salt melts without decomposition. A fragment of the salt imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. The aqueous solution yields, with test-solution of chloride of barium, a white precipitate insoluble in nitric acid.

The aqueous solution of the salt should not effervesce on the addition of an acid (abs. of carbonate), and should not be affected by hydrosulphuric acid or sulphide of ammonium (abs. of metals). A dilute, aqueous solution, acidulated with nitric acid, should yield no precipitate, or, at most, only a slight one, on the addition of test-solution of nitrate of silver (limit of chloride), nor should it give off alkaline vapors when heated with soda (abs. of ammonia).

1 Gm. of Sulphate of Sodium, when completely precipitated by chloride of barium, should yield 0.723 Gm. of dry sulphate of barium.

SODII SULPHIS.

SULPHITE OF SODIUM.

$Na_2SO_3.7H_2O$; 252. — $NaO,SO_2.7HO$; 126.

Sulphite of Sodium should be kept in well-stopped bottles, in a cool place.

Colorless, transparent, monoclinic prisms, efflorescent in dry air, odorless, having a cooling, saline and sulphurous taste, and a neutral or feebly alkaline reaction. Soluble in 4 parts of water at 15° C. (59° F.), and in 0.9 part of boiling water; only sparingly soluble in alcohol. When gently heated, the salt melts, then loses its water (50 per cent.), and at a red heat it is decomposed and leaves a residue having an alkaline reaction. A fragment of the salt imparts to a non-luminous flame an intense yellow color, not appearing more than transiently red when observed through a blue glass. Addition of diluted hydrochloric acid to the aqueous solution gives rise to the odor of burning sulphur, and the solution does not become cloudy (difference from hyposulphite).

A one per cent. aqueous solution of the salt, strongly acidulated with hydrochloric acid, should yield no precipitate, or at most only a white cloudiness, on the addition of a few drops of test-solution of chloride of barium (limit of sulphate).

If 0.63 Gm. of the salt be dissolved in 25 C.c. of water, and a little gelatinized starch added, at least 45 C.c. of the volumetric solution of iodine should be required, before a permanent blue tint appears after stirring (corresponding to at least 90 per cent. of pure Sulphite of Sodium).

SODII SULPHOCARBOLAS.

SULPHOCARBOLATE OF SODIUM.

$NaC_6H_5SO_4.2H_2O$; 232. — $NaO,C_{12}H_5O.2SO_3.4HO$; 232.

Colorless, transparent, rhombic prisms, permanent in the air, odorless or nearly so, having a cooling, saline, somewhat bitter taste, and a neutral reaction. Soluble in 5 parts of water, and in 132 parts of alcohol at 15° C. (59° F.); in 0.7 part of boiling water and in 10 parts of boiling alcohol. When heated, the salt loses its water and becomes a white powder. At a higher temperature it emits inflammable vapors having the odor of carbolic acid, and leaves a residue amounting to 36 per cent. of the original weight, the filtered solution of which, acidulated with nitric acid, produces a white precipitate with test-solution of chloride of barium. A fragment of the salt imparts an intense yellow color to a non-luminous flame The dilute, aqueous solution of the salt is colored violet by test-solution of ferric chloride.

A one per cent. aqueous solution of the salt should not at once be rendered turbid nor be precipitated by test-solution of chloride of barium (limit of sulphate).

SPIGELIA.

SPIGELIA.

[PINKROOT.]

The rhizome and rootlets of *Spigelia marilandica* Linné (Nat. Ord., *Loganiaceæ*).

Rhizome two inches (5 centimeters) or more long, about one-eighth of an inch (3 millimeters) thick, horizontal, bent, somewhat branched, on the upper side with cup-shaped scars; on the lower side with numerous, thin, brittle rootlets about four inches (10 centimeters) long; dark purplish-brown; somewhat aromatic, sweetish and bitter.

It should not be confounded with the underground portion of *Phlox Carolina* Linné, the rootlets of which are brownish-yellow, rather coarse, straight, and contain a straw-colored wood underneath a readily removable bark.

Preparation: Extractum Spigeliæ Fluidum.

SPIRITUS ÆTHERIS.

SPIRIT OF ETHER.

Stronger Ether, *thirty parts*	30
Alcohol, *seventy parts*	70
To make *one hundred parts*	100

Mix them.

SPIRITUS ÆTHERIS COMPOSITUS.

COMPOUND SPIRIT OF ETHER.

[HOFFMANN'S ANODYNE.]

Stronger Ether, *thirty parts*	30
Alcohol, *sixty-seven parts*	67
Ethereal Oil, *three parts*	3
To make *one hundred parts*	100

Mix them.

SPIRITUS ÆTHERIS NITROSI.

SPIRIT OF NITROUS ETHER.

[SWEET SPIRIT OF NITRE.]

An alcoholic solution of Ethyl Nitrite [$C_2H_5NO_2$; 75. — C_4H_5O,NO_3 ; 75], containing 5 per cent. of the crude Ether.

Nitric Acid, *nine parts*	9
Sulphuric Acid, *seven parts*	7
Alcohol,	
Distilled Water, each, *a sufficient quantity.*	

Add the Sulphuric Acid gradually to *thirty-one* (31) *parts* of Alcohol. When the mixture has cooled, transfer it to a tubulated retort connected with a well cooled condenser, to which a receiver, surrounded by broken ice, is connected air-tight, and which is further connected, by means of a glass tube, with a small vial containing water, the end of the tube dipping into the latter. Now add the Nitric Acid to the contents of the retort, and, having introduced a thermometer through the tubulure, heat rapidly, by means of a water-bath, until strong reaction occurs and the temperature reaches 80° C. (176° F.). Continue the distillation at that temperature, and not exceeding 82° C. (180° F.), until the reaction ceases. Disconnect the receiver, and immediately pour the distillate into a flask containing *sixteen* (16) *parts* of ice-cold Distilled Water. Close the flask and agitate the contents repeatedly, keeping down the temperature by immersing the flask occasionally in ice water. Then separate the ethereal layer and mix it immediately with *nineteen* (19) *times* its weight of Alcohol.

Keep the product in small, glass-stoppered vials, in a dark place, remote rom lights or fire.

A clear, mobile, volatile and inflammable liquid, of a pale straw-color, inclining slightly to green, a fragrant, ethereal odor, free from pungency, and a sharp, burning taste. Sp. gr. 0.823 to 0.825. It slightly reddens litmus paper, but should not effervesce when a crystal of bicarbonate of potassium is dropped into it. When mixed with half its volume of solution of potassa, previously diluted with an equal volume of water, it assumes a yellow color, which slightly deepens without becoming brown, in twelve hours. A portion of the Spirit, in a test-tube half filled with it, plunged into water heated to 63° C. (145.4° F.), and held there until it has acquired that temperature, should boil distinctly on the addition of a few small pieces of glass.

If 10 Gm. of Spirit of Nitrous Ether be macerated with 1.5 Gm. of potassa for twelve hours, with occasional agitation, the mixture then diluted in a beaker with an equal volume of water, and set aside until the odor of alcohol has disappeared, then slightly acidulated with diluted sulphuric acid, and a solution of 0.335 Gm. of permanganate of potassium gradually added, the color of the whole of this solution should be discharged (presence of at least 4 per cent. of real Ethyl Nitrite).

Preparation: Mistura Glycyrrhizæ Composita.

SPIRITUS AMMONIÆ.

SPIRIT OF AMMONIA.

An alcoholic solution of Ammonia [NH_3 ; 17. — NH_3 ; 17], containing 10 per cent., by weight, of the gas.

Stronger Water of Ammonia, *forty-five parts*	45
Alcohol, recently distilled, and which has been kept in glass vessels, *a sufficient quantity*.	

Pour the Stronger Water of Ammonia into a flask connected with a well cooled receiver, into which *eighty* (80) *parts* of Alcohol are introduced. Heat the flask carefully, and very gradually, to a temperature not exceeding 60° C. (140° F.), and maintain it at that temperature for about ten minutes. Then disconnect the receiver, and, having ascertained the ammoniacal strength of the contents by means of the volumetric solution of oxalic acid, add enough Alcohol to make the product contain *ten* (10) *per cent.* of Ammonia.

Keep the product in glass-stoppered bottles, in a cool place.

A colorless liquid, having a strong odor of ammonia, and a sp. gr. of about 0.810. When diluted with water, it should respond to the tests and reactions mentioned under water of ammonia (see *Aqua Ammoniæ*).

8.5 Gm. Spirit of Ammonia, diluted with distilled water, should require, for complete neutralization, 50 C.c. of the volumetric solution of oxalic acid.

SPIRITUS AMMONIÆ AROMATICUS.

AROMATIC SPIRIT OF AMMONIA.

Carbonate of Ammonium, *forty parts*	40
Water of Ammonia, *one hundred parts*	100
Oil of Lemon, *twelve parts*	12
Oil of Lavender Flowers, *one part*	1
Oil of Pimenta, *one part*	1
Alcohol, recently distilled, and which has been kept in glass vessels, *seven hundred parts*	700
Distilled Water, *a sufficient quantity,*	
To make *one thousand parts*	1000

To the Water of Ammonia, contained in a flask, add *one hundred and forty* (140) *parts* of Distilled Water, and afterward the Carbonate of Ammonium reduced to a moderately fine powder. Close the flask and agitate the contents until the Carbonate is dissolved. Weigh the Alcohol in a tared flask of suitable capacity, add the oils, then gradually add the solution of Carbonate of Ammonium, and afterward enough Distilled Water to make the product weigh *one thousand* (1000) *parts*. Lastly, filter the liquid, through paper, in a well-covered funnel.

Keep the product in glass-stoppered bottles, in a cool place.

A nearly colorless liquid when freshly prepared, gradually acquiring a slightly darker tint, of an aromatic, pungent, ammoniacal odor, and having a sp. gr. of about 0.885.

Preparations: Tinctura Guaiaci Ammoniata. Tinctura Valerianæ Ammoniata.

SPIRITUS ANISI.

SPIRIT OF ANISE.

Oil of Anise, *ten parts*	10
Alcohol, *ninety parts*	90
To make *one hundred parts*	100

Mix them.

SPIRITUS AURANTII.

SPIRIT OF ORANGE.

Oil of Orange Peel, *six parts*	6
Alcohol, *ninety-four parts*	94
To make *one hundred parts*	100

Mix them.

SPIRITUS CAMPHORÆ.

SPIRIT OF CAMPHOR.

Camphor, *ten parts*	10
Alcohol, *seventy parts*	70
Water, *twenty parts*	20
To make *one hundred parts*	100

Dissolve the Camphor in the Alcohol, add the Water, and filter through paper.

SPIRITUS CHLOROFORMI.

SPIRIT OF CHLOROFORM.

Purified Chloroform, *ten parts*	10
Alcohol, *ninety parts*	90
To make *one hundred parts*	100

Mix them.

SPIRITUS CINNAMOMI.

SPIRIT OF CINNAMON.

Oil of Cinnamon, *ten parts*	10
Alcohol, *ninety parts*	90
To make *one hundred parts*	100

Mix them.

SPIRITUS FRUMENTI.

WHISKY.

An alcoholic liquid, obtained by the distillation of fermented grain (usually corn, wheat, or rye), and at least two years old.

Whisky has an amber color, a distinctive taste and odor, and a sp. gr. not above 0.930, nor below 0.917, corresponding approximately with an alcoholic strength of 44 to 50 per cent. by weight, or 50 to 58 per cent. by volume.

If 100 C.c. of Whisky be very slowly evaporated in a weighed capsule, on a water-bath, the last portions volatilized should not have a harsh or disagreeable odor (abs. of more than traces of fusel oil from grain or potato spirit). The residue, fully dried at 100° C. (212° F.), should weigh not more than 0.250 Gm., equivalent to 0.25 per cent. (abs. of an undue amount of solids). This residue should have no sweet or distinctly spicy taste (abs. of added sugar, glycerin, or spices). It should nearly all dissolve in 10 C.c. of cold water, forming a solution which is colored light green by a dilute solution of ferric chloride (traces of oak tannin from casks). 100 C.c. of Whisky should be rendered distinctly alkaline to litmus by 2 C.c. of the volumetric solution of soda (abs. of an undue amount of free acid).

SPIRITUS GAULTHERIÆ.

SPIRIT OF GAULTHERIA.

Oil of Gaultheria, *three parts*	3
Alcohol, *ninety-seven parts*	97
To make *one hundred parts*	100

Mix them.

SPIRITUS JUNIPERI.

SPIRIT OF JUNIPER.

Oil of Juniper, *three parts*	3
Alcohol, *ninety-seven parts*	97
To make *one hundred parts*	100

Mix them.

SPIRITUS JUNIPERI COMPOSITUS.

COMPOUND SPIRIT OF JUNIPER.

Oil of Juniper, *ten parts*	10
Oil of Caraway, *one part*	1
Oil of Fennel, *one part*	1
Alcohol, *three thousand parts*	3000
Water, *a sufficient quantity,*	
To make *five thousand parts*	5000

Dissolve the Oils in the Alcohol, and gradually add enough Water to make the product weigh *five thousand* (5000) *parts.*

SPIRITUS LAVANDULÆ.

SPIRIT OF LAVENDER.

Oil of Lavender Flowers, *three parts*	3
Alcohol, *ninety-seven parts*	97
To make *one hundred parts*	100

Mix them.

SPIRITUS LIMONIS.

SPIRIT OF LEMON.

[ESSENCE OF LEMON.]

Oil of Lemon, *six parts*	6
Lemon Peel, freshly grated, *four parts*	4
Alcohol, *a sufficient quantity*,	
To make *one hundred parts*	100

Dissolve the Oil of Lemon in *ninety* (90) *parts* of Alcohol, add the Lemon Peel, and macerate for twenty-four hours; then filter through paper, adding through the filter enough Alcohol to make the Spirit weigh *one hundred* (100) *parts*.

Preparation: Syrupus Acidi Citrici.

SPIRITUS MENTHÆ PIPERITÆ.

SPIRIT OF PEPPERMINT.

[ESSENCE OF PEPPERMINT.]

Oil of Peppermint, *ten parts*	10
Peppermint, in coarse powder, *one part*	1
Alcohol, *a sufficient quantity*,	
To make *one hundred parts*	100

Dissolve the Oil of Peppermint in *ninety* (90) *parts* of Alcohol, add the Peppermint, and macerate for twenty-four hours; then filter through paper, adding through the filter enough Alcohol to make the Spirit weigh *one hundred* (100) *parts*.

Preparation: Mistura Rhei et Sodæ.

SPIRITUS MENTHÆ VIRIDIS.

SPIRIT OF SPEARMINT.

[ESSENCE OF SPEARMINT.]

Oil of Spearmint, *ten parts*	10
Spearmint, in coarse powder, *one part*	1
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Dissolve the Oil of Spearmint in *ninety* (90) *parts* of Alcohol, add the Spearmint, and macerate for twenty-four hours; then filter through paper, adding through the filter enough Alcohol to make the Spirit weigh *one hundred* (100) *parts.*

SPIRITUS MYRCIÆ.

SPIRIT OF MYRCIA.

[BAY RUM.]

Oil of Myrcia, *sixteen parts*	16
Oil of Orange Peel, *one part*	1
Oil of Pimento, *one part*	1
Alcohol, *one thousand parts*	1000
Water, *seven hundred and eighty-two parts*	782
To make *eighteen hundred parts*	1800

Mix the Oils with the Alcohol, and gradually add the Water to the solution. Set the mixture aside, in a well-stopped bottle, for eight days, then filter through paper, in a well-covered funnel.

SPIRITUS MYRISTICÆ.

SPIRIT OF NUTMEG.

[ESSENCE OF NUTMEG.]

Oil of Nutmeg, *three parts*	3
Alcohol, *ninety-seven parts*	97
To make *one hundred parts*	100

Mix them.

SPIRITUS ODORATUS.

PERFUMED SPIRIT.

[COLOGNE WATER.]

Oil of Bergamot, *sixteen parts*	16
Oil of Lemon, *eight parts*	8
Oil of Rosemary, *eight parts*	8
Oil of Lavender Flowers, *four parts*	4
Oil of Orange Flowers, *four parts*	4
Acetic Ether, *two parts*	2
Water, *one hundred and fifty-eight parts*	158
Alcohol, *eight hundred parts*	800
To make *one thousand parts*	1000

Dissolve the Oils and the Acetic Ether in the Alcohol, and add the Water. Set the mixture aside, in a well-closed bottle, for eight days, then filter through paper, in a well-covered funnel.

SPIRITUS VINI GALLICI.

BRANDY.

An alcoholic liquid obtained by the distillation of fermented grapes, and at least four years old.

Brandy has a pale amber color, a distinctive taste and odor, and a sp. gr. not above 0.941, nor below 0.925, corresponding approximately with an alcoholic strength of 39 to 47 per cent. by weight, or 46 to 55 per cent. by volume.

If 100 C.c. of Brandy be very slowly evaporated in a weighed capsule, on a water-bath, the last portions volatilized should have an agreeable odor, free from harshness (abs. of fusel oil from grain or potato spirit). The residue, dried at 100° C. (212° F.), should weigh not more than 0.250 Gm., equivalent to 0.25 per cent. (abs. of an undue amount of solids). This residue should have no sweet or distinctly spicy taste (abs. of added sugar, glycerin, or spices). It should nearly all dissolve in 10 C.c. of cold water, forming a solution which is colored light green by a dilute solution of ferric chloride (traces of oak tannin from casks). 100 C.c. of Brandy should be rendered distinctly alkaline to litmus by 3 C.c. of the volumetric solution of soda (abs. of an undue amount of free acid).

STAPHISAGRIA.

STAPHISAGRIA.

[STAVESACRE.]

The seed of *Delphinium Staphisagria* Linné (Nat. Ord., *Ranunculaceæ*).

From one-eighth to one-sixth of an inch (3 to 4 millimeters) broad, flattish-tetrahedral, one side convex, brown or brownish-gray, with reticulate ridges, containing a whitish, oily albumen and a straight embryo; nearly inodorous; taste bitter and acrid.

STILLINGIA.

STILLINGIA.

[QUEEN'S ROOT.]

The root of *Stillingia sylvatica* Linné (Nat. Ord., *Euphorbiaceæ*).

About twelve inches (30 centimeters) long, and nearly two inches (5 centimeters) thick, sub-cylindrical, slightly branched, compact, wrinkled, tough, grayish-brown, breaking with a fibrous fracture, showing a thick bark and porous wood, the inner bark and medullary rays with numerous yellowish-brown resin-cells; odor peculiar, unpleasant; taste bitter, acrid, pungent.

Preparation: Extractum Stillingiæ Fluidum.

STRAMONII FOLIA.

STRAMONIUM LEAVES.

The leaves of *Datura Stramonium* Linné (Nat. Ord., *Solanaceæ*).

About six inches (15 centimeters) long, petiolate, smooth, ovate, pointed, unequal at the base, coarsely and sinuately toothed; after drying, thin, brittle and nearly inodorous; taste unpleasant, bitter and nauseous.

STRAMONII SEMEN.

STRAMONIUM SEED.

The seed of *Datura Stramonium* Linné (Nat. Ord., *Solanaceæ*).

About one-sixth of an inch (4 millimeters) long, reniform, flattened, pitted, and wrinkled; testa dull brownish-black, hard, inclosing a cylindrical, curved embryo, imbedded in a whitish, oily albumen; of an unpleasant odor when bruised, and of an oily and bitter taste.

Preparations: Extractum Stramonii. Extractum Stramonii Fluidum. Tinctura Stramonii

STRYCHNINA.

STRYCHNINE.

$C_{21}H_{22}N_2O_2$; 334. — $C_{42}H_{22}N_2O_4$; 334.

[STRYCHNIA, *Pharm.*, 1870.]

An alkaloid prepared from Nux Vomica or Ignatia, and also occurring in other plants of the Nat. Ord., *Loganiaceæ*.

Colorless, octahedral or prismatic crystals, or a white, crystalline powder, permanent in the air, odorless, but having an intensely bitter taste, which is still perceptible in highly dilute (1 in 700,000) solution, and of an alkaline reaction. Soluble in 6700 parts of water, and in 110 parts of alcohol at 15° C. (59° F.); in

2500 parts of boiling water, and in 12 parts of boiling alcohol; also soluble in 6 parts of chloroform, but almost insoluble in ether or in absolute alcohol. When heated to about 312° C. (594° F.), Strychnine melts, but is previously decomposed: at a red heat it is wholly dissipated. On adding to a few drops of cold, concentrated sulphuric acid, one drop of a solution of Strychnine, or of any of its salts, and then a small crystal of bichromate of potassium, a deep blue color makes its appearance, rapidly passing into violet, then cherry red, and fades after some time.

Strychnine should not be reddened at all, or at most but very faintly, by nitric acid (abs. of more than traces of brucine).

Preparation: Ferri et Strychninæ Citras. Syrupus Ferri, Quininæ et Strychninæ Phosphatum.

STRYCHNINÆ SULPHAS.

SULPHATE OF STRYCHNINE.

$(C_{21}H_{22}N_2O_2)_2H_2SO_4.7H_2O$; 892. — $C_{42}H_{22}N_2O_4,HO,SO_3.7HO$; 446.

[STRYCHNIÆ SULPHAS, *Pharm.*, 1870.]

Sulphate of Strychnine should be kept in well-stopped vials.

Colorless or white, shining, prismatic crystals, efflorescent in dry air, odorless, but having an intensely bitter taste, which is still perceptible in highly dilute (1 in 700,000) solution, and of a neutral reaction. Soluble in 10 parts of water, and in 60 parts of alcohol at 15° C. (59° F.); in 2 parts of boiling water, and in 2 parts of boiling alcohol; also soluble in 26 parts of glycerin, but insoluble in ether. When heated to about 135° C. (275° F.), the salt melts, and loses 14.1 per cent. of its weight (water of crystallization); at a red heat it is completely dissipated.

On adding solution of potassa to the aqueous solution, a white precipitate is thrown down, which is insoluble in an excess of potassa, and which answers to the reaction of strychnine (see *Strychnina*). The aqueous solution of the salt yields, with test-solution of chloride of barium, a white precipitate insoluble in hydrochloric acid.

STYRAX.

STORAX.

A balsam prepared from the inner bark of *Liquidambar orientalis* Miller (Nat. Ord., *Hamamelaceæ, Balsamifluæ*).

Semi-liquid, gray, sticky, opaque; depositing, on standing, a heavier, dark-brown stratum; transparent in thin layers, of an agreeable odor and balsamic taste. It is completely soluble, with the exception of accidental impurities, in an equal weight of warm alcohol. This solution (which has an acid reaction), after being cooled and filtered, should leave, on evaporation, not less than 70 per cent. of the original weight of the balsam, in form of a brown, semi-liquid residue, almost completely soluble in ether and in disulphide of carbon, but insoluble in benzin. When heated on a water-bath, Storax becomes more liquid, and if then agitated with warm benzin, the supernatant liquid, on being decanted and allowed to cool, will be colorless and will deposit white crystals (cinnamic acid, and cinnamic ethers).

Preparation: Tinctura Benzoini Composita.

SULPHURIS IODIDUM.

IODIDE OF SULPHUR.

Washed Sulphur, *one part*	1
Iodine, *four parts*	4

Rub them together until they are thoroughly mixed. Introduce the mixture into a flask, close the orifice loosely, and apply a gentle heat so as to darken the mass without melting it. When the color has become uniformly dark throughout, increase the heat so as to produce liquefaction, and incline the flask in different directions, in order to return into the liquid any portion of Iodine which may have been condensed on the inner surface of the flask. Then withdraw the heat, and, after the liquid has become solid, break the flask, reduce the fused mass to pieces, and keep them in a glass-stoppered bottle.

A grayish-black solid, generally in pieces having a radiated, crystalline appearance, the characteristic odor of iodine, a somewhat acrid taste, and a faintly acid reaction. It is insoluble in water, but very soluble in disulphide of carbon; also soluble in about 60 parts of glycerin. Alcohol and ether dissolve out all the iodine, leaving the sulphur. When exposed to the air, it gradually loses iodine. On being heated, it sublimes, the first part of the sublimate consisting of iodine, and the subsequent portion containing both iodine and sulphur. On continued heating it is volatilized, without leaving more than a trace of residue.

If 100 parts of Iodide of Sulphur be thoroughly boiled with water, all the iodine will escape, and about 20 parts of sulphur will remain.

SULPHUR LOTUM.

WASHED SULPHUR.

S; 32. — *S;* 16.

Sublimed Sulphur, *twelve parts*	12
Water of Ammonia, *one part*	1
Water, *a sufficient quantity.*	

Add the Sulphur to *twelve* (12) *parts* of Water previously mixed with the Water of Ammonia, and digest for three days, agitating occasionally. Then add *twelve* (12) *parts* of Water, transfer the mixture to a muslin strainer, and wash the Sulphur with Water, until the liquid running from the strainer ceases to produce a precipitate in test-solution of chloride of barium. Then allow it to drain, press the residue strongly, dry it at a very gentle heat, and pass it through a No. 30 sieve.

A fine, citron-yellow powder, odorless and almost tasteless, insoluble in water or alcohol, but completely soluble in a boiling solution of soda, or in disulphide of carbon. When heated to 115° C. (239° F.), Washed Sulphur melts, and at a higher temperature it is volatilized, without leaving more than a trace of residue.

Water agitated with it should not redden blue litmus paper (abs. of free acid). If Washed Sulphur be digested with 2 parts of water of ammonia and the mixture filtered, the filtrate, on being supersaturated with hydrochloric acid, should remain unaltered (abs. of arsenious sulphide), nor should a precipitate make its appearance on passing hydrosulphuric acid through the filtrate (abs. of arsenious acid).

Preparations: Pulvis Glycyrrhizæ Compositus. Sulphuris Iodidum. Unguentum Sulphuris Alkalinum.

SULPHUR PRÆCIPITATUM.

PRECIPITATED SULPHUR.

S; 32. — *S*; 16.

Sublimed Sulphur, *one hundred parts*	100
Lime, *fifty parts*	50
Hydrochloric Acid,	
Water, each, *a sufficient quantity.*	

Slake the Lime, and make it into a uniform mixture with *five hundred* (500) *parts* of Water. Add the Sulphur, previously well dried and sifted, mix well, add *one thousand* (1000) *parts* of Water, and heat the mixture to boiling, over a fire, for one hour, stirring constantly, and replacing the Water lost by evaporation. Then cover the vessel, allow the contents to cool, pour off the clear solution, filter the remainder, and to the united liquids add, gradually, Hydrochloric Acid, previously diluted with an equal volume of Water, until the liquid is nearly neutralized, still retaining, however, an alkaline reaction. Collect the precipitate on a strainer, and wash it with Water until the washings are tasteless. Then dry it with a gentle heat.

A very fine, yellowish-white, amorphous powder, odorless and almost tasteless, insoluble in water or in alcohol, but completely soluble in a boiling solution of soda, or in disulphide of carbon. By heat it is completely volatilized.

Water agitated with it should not redden blue litmus paper (abs. of free acid). If Precipitated Sulphur be boiled with diluted hydrochloric acid, the liquid filtered, and the filtrate divided into two portions, one portion should not be precipitated by test-solution of chloride of barium, and the other portion should not be rendered more than slightly turbid by test-solution of carbonate of ammonium with excess of water of ammonia (abs. of sulphate of calcium). When digested successively with water, hydrochloric acid, and water of ammonia, these liquids, after filtration, should leave no residue on evaporation (abs. of alkalies, alkaline earths, or sulphide). If Precipitated Sulphur be digested with twice its weight of water of ammonia and the mixture filtered, the filtrate, after being supersaturated with hydrochloric acid, should remain unaltered (abs. of arsenious sulphide), nor should a precipitate make its appearance on passing hydrosulphuric acid through the filtrate (abs. of arsenious acid).

SULPHUR SUBLIMATUM.

SUBLIMED SULPHUR.

S ; 32. — *S;* 16.

A fine, citron-yellow powder, of a slight, characteristic odor, and generally of a faintly acid taste, and an acid reaction. It is insoluble in water or alcohol. When ignited, it burns with a blue flame, forming sulphurous acid gas, and leaving no residue or only a trace.

Preparations: Sulphur Lotum. Sulphur Præcipitatum. Unguentum Sulphuris.

SUMBUL.

SUMBUL.

The root of *Ferula Sumbul* Hooker filius (Nat. Ord., *Umbelliferæ, Orthospermæ*).

In transverse segments, varying considerably in diameter and thickness, light, spongy, annulate or longitudinally wrinkled; bark thin, brown, more or less bristly fibrous; the interior whitish, with numerous brownish-yellow resin-dots and irregular, easily separated fibres; odor strong, musk-like; taste bitter and balsamic.

Preparation: Tinctura Sumbul.

SUPPOSITORIA.

SUPPOSITORIES.

Suppositories are to be prepared by the following formula:

Mix the medicinal portion (previously brought to a proper consistence, if necessary) with a small quantity of Oil of Theobroma, by rubbing them together, and add the mixture to the remainder of the Oil of Theobroma, previously melted and cooled to the temperature of 35° C. (95° F.). Then mix thoroughly, without applying more heat, and immediately pour the mixture into suitable moulds. The moulds must be kept cold by being placed on ice, or by immersion in ice-cold water; and the inner surface of the moulds should be carefully freed from adhering moisture, before the melted mass is poured in. In the absence of suitable moulds, Suppositories may be formed by allowing the mixture, prepared as above, to cool, care being taken to keep the ingredients well mixed, and dividing it into parts, of a definite weight each, which may be made into a conical or other convenient form for a suppository.

Unless otherwise specified, Suppositories shall be made to weigh about *fifteen* (15) *grains* or *one* (1) *gramme.*

SYRUPUS.

SYRUP.

Sugar, in coarse powder, *sixty-five parts*	65
Distilled Water, *a sufficient quantity,*	
To make *one hundred parts*	100

Dissolve the Sugar, with the aid of heat, in *thirty-five* (35) *parts* of Distilled Water, raise the temperature to the boiling point, and strain the solution while hot. Then incorporate with the solution enough Distilled Water, added through the strainer, to make the Syrup weigh *one hundred* (100) *parts.*

Syrup thus prepared has the sp. gr. 1.310.

Preparations : Syrupus Acaciæ ; other compound Syrups, etc.

SYRUPUS ACACIÆ.

SYRUP OF ACACIA.

Mucilage of Acacia, *twenty-five parts*	25
Syrup, *seventy-five parts*	75
To make *one hundred parts*	100

Mix them.

This Syrup should be freshly made, when required for use.

SYRUPUS ACIDI CITRICI.

SYRUP OF CITRIC ACID.

Citric Acid, *eight parts*	8
Water, *eight parts*	8
Spirit of Lemon, *four parts*	4
Syrup, *nine hundred and eighty parts*	980
To make *one thousand parts*	1000

Mix the Spirit of Lemon with the Syrup contained in a bottle ; then add, gradually, the Citric Acid dissolved in the Water, shaking the bottle after each addition until the whole is thoroughly mixed.

SYRUPUS ACIDI HYDRIODICI.

SYRUP OF HYDRIODIC ACID.

A syrupy liquid containing 1 per cent. of absolute Hydriodic Acid [HI; 127.6. — *HI*; 127.6].

Iodine, *ten parts*	10
Alcohol, *eighty parts*	80
Syrup, *one hundred and fifty parts*	150
Sugar, *five hundred parts*	500
Spirit of Orange, *five parts*	5
Distilled Water, *a sufficient quantity,*	
To make *one thousand parts*	1000

Dissolve the Iodine in the Alcohol, with a very gentle heat, in a loosely stoppered flask, avoiding loss of Iodine from vaporization. Add the solution to the Syrup previously mixed with *one hundred and fifty* (150) *parts* of Distilled Water, and pass through the mixture a current of hydrosulphuric acid gas, until it acquires a pure yellowish color, and ceases to turn brown on shaking. Filter the liquid through white filtering paper, returning the first portions until it runs clear; wash the filter with a little Distilled Water, and evaporate the filtrate and washings, in a tared porcelain capsule, on a water-bath, at a temperature not exceeding 55° C. (131° F.), constantly stirring, until all odor of hydrosulphuric acid has disappeared. Then set the capsule aside, well covered, and allow the contents to cool. When cold, add the Spirit of Orange, the Sugar, and enough Distilled Water to make the whole weigh *one thousand* (1000) *parts*. When the Sugar has been dissolved, by stirring, strain the Syrup through a pellet of cotton placed in the neck of the funnel, which is to be kept covered, and transfer the filtered Syrup to small vials, which should be completely filled, securely corked, and kept in a cool and dark place.

A transparent, colorless or not more than pale straw-colored liquid, odorless, having a sweet and acidulous taste, and an acid reaction. Sp. gr. 1300. If disulphide of carbon be poured into a small portion of the Syrup, a little chlorine water then added, and the whole agitated, the disulphide will separate with a violet color.

Gelatinized starch added to the Syrup should not impart to it more than a faint bluish tint (abs. of more than traces of free iodine). Test-solution of chloride of barium, added to a portion of the Syrup, should produce no precipitate (abs. of sulphuric acid). Test-solution of nitrate of silver produces a precipitate which is nearly insoluble in water of ammonia (abs. of hydrochloric acid).

31.9 Gm. of Syrup of Hydriodic Acid should require, for complete precipitation, 25 C.c. of the volumetric solution of nitrate of silver.

SYRUPUS ALLII.

SYRUP OF GARLIC.

Fresh Garlic, sliced and bruised, *fifteen parts*	15
Sugar, in coarse powder, *sixty parts*	60
Diluted Acetic Acid, *forty parts*	40
To make *one hundred parts*	100

Macerate the Garlic with *twenty-five* (25) *parts* of the Diluted Acetic Acid, in a glass vessel, for four days, and express the liquid. Then mix the residue with the remainder of the Acid, and again express, until enough additional liquid has been obtained to make the whole, when filtered, weigh *forty* (40) *parts*. Lastly, pour the filtered liquid upon the Sugar contained in a suitable bottle, and agitate until it is dissolved.

Keep the Syrup in well-stopped, filled bottles, in a cool place.

SYRUPUS ALTHÆÆ.

SYRUP OF ALTHÆA.

Althæa, cut into small pieces, *four parts*	4
Sugar, in coarse powder, *sixty parts*	60
Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Having washed the Althæa with cold Water, pour upon it *sixty* (60) *parts* of cold Water, and macerate for one hour, stirring frequently; then drain through flannel, without expressing. To *forty* (40) *parts* of the drained liquid add the Sugar, and dissolve it by agitation, without heat.

This Syrup should be freshly made, when required for use.

SYRUPUS AMYGDALÆ.

SYRUP OF ALMOND.

Sweet Almond, *ten parts*	10
Bitter Almond, *three parts*	3
Sugar, in coarse powder, *fifty parts*	50
Orange Flower Water, *five parts*	5
Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Having blanched the Almonds, rub them in a mortar to a very fine paste, adding, during the trituration, *three* (3) *parts* of Water and *ten* (10) *parts* of Sugar. Mix the paste thoroughly with the Orange Flower Water and *thirty* (30) *parts* of Water, strain with strong expression, and add enough Water to the dregs, to obtain, after renewed expression, *sixty* (60) *parts* of strained liquid. To this add the remainder of the Sugar, dissolve it by agitation without heat, and strain through muslin.

Keep the Syrup in well-stopped, filled bottles, in a cool place.

SYRUPUS AURANTII.

SYRUP OF ORANGE.

Sweet Orange Peel, recently separated from the fresh fruit, deprived of the inner, white layer, and cut into small pieces, *five parts*	5
Alcohol, *five parts*	5
Precipitated Phosphate of Calcium, *one part*	1
Sugar, *sixty parts*	60
Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Macerate the Orange Peel with the Alcohol for seven days; then express the liquid. Rub this with the Precipitated Phosphate of Calcium and *thirty* (30) *parts* of Water, gradually added; filter the mixture, and pass enough Water through the filter to make the filtrate weigh *forty* (40) *parts*. Lastly, add the Sugar, dissolve it by agitation, without heat, and strain.

SYRUPUS AURANTII FLORUM.

SYRUP OF ORANGE FLOWERS.

Orange Flower Water, *thirty-five parts*	35
Sugar, in coarse powder, *sixty five parts*	65
To make *one hundred parts*	100

Dissolve the Sugar in the Orange Flower Water by agitation, without heat.

SYRUPUS CALCII LACTOPHOSPHATIS.

SYRUP OF LACTOPHOSPHATE OF CALCIUM.

Precipitated Phosphate of Calcium, *twenty-two parts*	22
Lactic Acid, *thirty-three parts*	33
Orange Flower Water, *eighty parts*	80
Sugar, in coarse powder, *six hundred parts*	600
Hydrochloric Acid,	
Water of Ammonia,	
Water, each, *a sufficient quantity*,	
To make *one thousand parts*	1000

To the Precipitated Phosphate of Calcium, mixed with *three hundred* (300) *parts* of cold Water, add enough Hydrochloric Acid to dissolve it. Filter the solution, dilute it with *twelve hundred* (1200) *parts* of cold Water, and then add Water of Ammonia, until it is slightly in excess. Transfer the mixture at once to a fine, wetted muslin strainer. As soon as the liquid has run off, return the magma to the vessel, mix it quickly with *twelve hundred* (1200) *parts* of cold Water, and again transfer it to the strainer. When it has drained, mix the magma at once with the Lactic Acid, and stir until it is dissolved. Then add the Orange Flower Water and enough Water to make the solution weigh about *three hundred and fifty* (350) *parts*, filter, and pass enough Water through the filter to make the filtrate weigh *four hundred* (400) *parts*. Lastly, add to this the Sugar, dissolve it by agitation, without heat, and strain.

SYRUPUS CALCIS.

SYRUP OF LIME.

Lime, *five parts*	5
Sugar, in coarse powder, *thirty parts*	30
Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Triturate the Lime and Sugar thoroughly in a mortar; then add the mixture to *fifty* (50) *parts* of boiling Water, contained in a bright, copper or tinned-iron vessel, and boil the mixture for five minutes, constantly stirring. Dilute it with an equal volume of Water, and filter through white paper. Finally, evaporate the Syrup to *one hundred* (100) *parts*.

SYRUPUS FERRI BROMIDI.

SYRUP OF BROMIDE OF IRON.

A syrupy liquid containing 10 per cent. of Ferrous Bromide [$FeBr_2$; 215.5. — *FeBr ;* 107.75].

Iron, in the form of fine wire, and cut into small pieces, *thirty parts*	30
Bromine, *seventy-five parts*	75
Sugar, in coarse powder, *six hundred parts*	600
Distilled Water, *a sufficient quantity,*	
To make *one thousand parts*	1000

Introduce the Iron into a flask of thin glass of suitable capacity, add to it *two hundred* (200) *parts* of Distilled Water and afterward the Bromine. Shake the mixture occasionally, until the reaction ceases and the solution has acquired a green color and has lost the odor of Bromine. Place the Sugar in a porcelain capsule and filter the solution of bromide of iron into the Sugar. Rinse the flask and Iron wire with *ninety* (90) *parts* of Distilled Water, and pass the washings through the filter into the Sugar. Stir the mixture with a porcelain or wooden spatula, heat it to the boiling point on a sand-bath, and, having strained the Syrup through linen into a tared bottle, add enough Distilled Water to make the product weigh *one thousand* (1000) *parts*. Lastly, shake the bottle and transfer its contents to small vials, which should be completely filled, securely corked, and kept in a place accessible to daylight.

A transparent, pale-green liquid, odorless, having a sweet, strongly ferruginous taste, and a neutral reaction. With test-solution of ferricyanide of potassium it yields a blue precipitate. If a little disulphide of carbon be added to the Syrup, then a few drops of chlorine water, and the whole agitated, the disulphide will separate with a yellow or brown color. It should not deposit a sediment on keeping, and should not tinge gelatinized starch yellow (abs. of free bromine).

5.39 Gm. of the Syrup should require for complete precipitation, 50 C.c. of the volumetric solution of nitrate of silver (corresponding to 10 per cent. of ferrous bromide).

SYRUPUS FERRI IODIDI.

SYRUP OF IODIDE OF IRON.

A syrupy liquid containing 10 per cent. of Ferrous Iodide [FeI_2 ; 309.1. — *FeI ;* 154.55].

Iron, in the form of fine wire, and cut into small pieces, *twenty-five parts*	25
Iodine, *eighty-two parts*	82
Sugar, in coarse powder, *six hundred parts*	600
Distilled Water, *a sufficient quantity,*	
To make *one thousand parts*	1000

Introduce the Iron into a flask of thin glass of suitable capacity, add to it *two hundred* (200) *parts* of Distilled Water and afterward the Iodine. Shake the mixture occasionally, until the reaction ceases and the solution has acquired a green color and has lost the odor of Iodine. Place the Sugar in a porcelain capsule and filter the solution of iodide of iron into the Sugar. Rinse the flask and Iron wire with *ninety* (90) *parts* of Distilled Water, and pass the washings through the filter into the Sugar. Stir the mixture with a porcelain or wooden spatula, heat it to the boiling point on a sand-bath, and, having strained the Syrup through linen into a tared bottle, add enough Distilled Water to make the product weigh *one thousand* (1000) *parts*. Lastly, shake the bottle and transfer its contents to small vials, which should be completely filled, securely corked, and kept in a place accessible to daylight.

A transparent, pale green liquid, odorless, having a sweet, strongly ferruginous taste, and a neutral reaction. With test-solution of ferricyanide of potassium it yields a blue precipitate. If a little disulphide of carbon be added to the Syrup, then a few drops of chlorine water, and the whole agitated, the disulphide will separate with a purple or violet color. It should not deposit a sediment on keeping and should not tinge gelatinized starch blue (abs. of free iodine).

7.73 Gm. of the Syrup should require for complete precipitation, 50 C.c. of the volumetric solution of nitrate of silver (corresponding to 10 per cent. of ferrous iodide).

SYRUPUS FERRI QUININÆ ET STRYCHNINÆ PHOSPHATUM.

SYRUP OF THE PHOSPHATES OF IRON, QUININE, AND STRYCHNINE.

Phosphate of Iron, *one hundred and thirty-three parts*	133
Quinine, *one hundred and thirty-three parts*	133
Strychnine, *four parts*	4
Phosphoric Acid, *eight hundred parts*	800
Sugar, in coarse powder, *six thousand parts*	6000
Distilled Water, *a sufficient quantity*,	
To make *ten thousand parts*	10000

Add the Phosphate of Iron to *twenty-five hundred* (2500) *parts* of Distilled Water, in a tared bottle large enough to hold the finished Syrup, and agitate frequently until the salt is dissolved. Having added the Phosphoric Acid to the solution, triturate the Quinine and Strychnine gradually with the mixture, in a mortar, until they are dissolved, then return the solution to the bottle and add enough Distilled Water to make the liquid weigh *four thousand* (4000) *parts*. Lastly, add the Sugar, dissolve it by agitation, without heat, and filter through paper.

Keep the Syrup in small, well-stopped vials, in a cool and dark place.

SYRUPUS HYPOPHOSPHITUM.

SYRUP OF HYPOPHOSPHITES.

Hypophosphite of Calcium, *thirty-five parts*	35
Hypophosphite of Sodium, *twelve parts*	12
Hypophosphite of Potassium, *twelve parts*	12
Citric Acid, *one part*	1
Spirit of Lemon, *two parts*	2
Sugar, in coarse powder, *five hundred parts*	500
Water, *a sufficient quantity,*	
To make *one thousand parts*	1000

Mix the Hypophosphites, and dissolve them, by trituration, in *three hundred and fifty* (350) *parts* of Water. Should there be a trifling residue undissolved, allow the solution to settle, pour off nearly all of it, and add the Citric Acid so that the residue may be dissolved. Then, having mixed the liquids, add the Spirit of Lemon, and filter through paper, adding through the filter enough Water to make the whole weigh *five hundred* (500) *parts*. In this liquid dissolve the Sugar, by agitation, without heat, and strain.

Keep the Syrup in well-stopped bottles.

Preparation: Syrupus Hypophosphitum cum Ferro.

SYRUPUS HYPOPHOSPHITUM CUM FERRO.

SYRUP OF HYPOPHOSPHITES WITH IRON.

Lactate of Iron, *one part*	1
Syrup of Hypophosphites, *ninety-nine parts*	99
To make *one hundred parts*	100

Dissolve the Lactate of Iron in the Syrup by trituration.

Keep the Syrup in well-stopped bottles.

SYRUPUS IPECACUANHÆ.

SYRUP OF IPECAC.

Fluid Extract of Ipecac, *five parts*	5
Syrup, *ninety-five parts*	95
To make *one hundred parts*	100

Mix them.

SYRUPUS KRAMERIÆ.

SYRUP OF KRAMERIA.

Fluid Extract of Krameria, *thirty-five parts*	35
Syrup, *sixty-five parts*	65
To make *one hundred parts*	100

Mix them.

SYRUPUS LACTUCARII.

SYRUP OF LACTUCARIUM.

Fluid Extract of Lactucarium, *five parts*	5
Syrup, *ninety-five parts*	95
To make *one hundred parts*	100

Mix them.

SYRUPUS LIMONIS.

SYRUP OF LEMON.

Lemon Juice, recently expressed and strained, *forty parts*	40
Fresh Lemon Peel, *two parts*	2
Sugar, in coarse powder, *sixty parts*	60
Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Heat the Lemon Juice to the boiling point; then add the Lemon Peel, and let the whole stand, closely covered, until cold. Filter, add enough Water through the filter to make the filtrate weigh *forty* (40) *parts*, dissolve the Sugar in the filtered liquid by agitation, without heat, and strain.

SYRUPUS PICIS LIQUIDÆ.

SYRUP OF TAR.

Tar, *six parts*	6
Cold Water, *twelve parts*	12
Boiling Distilled Water, *fifty parts*	50
Sugar, in coarse powder, *sixty parts*	60
To make *one hundred parts*	100

Upon the Tar, contained in a suitable vessel, pour the Cold Water, and stir the mixture frequently during twenty-four hours; then pour off the water and throw it away. Pour the Boiling Distilled Water upon the residue, stir the mixture briskly for fifteen minutes, and set it aside for thirty-six hours, stirring occasionally. Decant the solution and filter. Lastly, in *forty* (40) *parts* of the filtered solution dissolve the Sugar by agitation, without heat.

SYRUPUS PRUNI VIRGINIANÆ.

SYRUP OF WILD CHERRY.

Wild Cherry, in No. 20 powder, *twelve parts*	12
Sugar, in coarse powder, *sixty parts*	60
Glycerin, *five parts*	5
Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the Wild Cherry thoroughly with Water, and macerate for twenty-four hours in a close vessel; then pack it firmly in a cylindrical glass percolator, and gradually pour Water upon it until *thirty-five* (35) *parts* of percolate are obtained. Dissolve the Sugar in the liquid, by agitation, without heat, add the Glycerin, and strain.

SYRUPUS RHEI.

SYRUP OF RHUBARB.

Rhubarb, sliced, *ninety parts*	90
Cinnamon, bruised, *eighteen parts*	18
Carbonate of Potassium, *six parts*	6
Sugar, in coarse powder, *six hundred parts*	600
Water, *a sufficient quantity*,	
To make *one thousand parts*	1000

Mix the Rhubarb, Cinnamon, and Carbonate of Potassium with *four hundred and twenty* (420) *parts* of Water, and macerate the mixture in a glass or porcelain vessel for twelve hours. Then strain and filter, adding through the dregs, if necessary, enough Water to make the filtered liquid weigh *four hundred* (400) *parts*. Lastly, add the Sugar, dissolve it by agitation, without heat, and strain.

SYRUPUS RHEI AROMATICUS.

AROMATIC SYRUP OF RHUBARB.

Aromatic Tincture of Rhubarb, *ten parts*	10
Syrup, *ninety parts*	90
To make *one hundred parts*	100

Mix the Aromatic Tincture of Rhubarb with the Syrup.

SYRUPUS ROSÆ.

SYRUP OF ROSE.

Fluid Extract of Rose, *ten parts*	10
Syrup, *ninety parts*	90
To make *one hundred parts*	100

Mix them.

SYRUPUS RUBI.

SYRUP OF RUBUS.

Fluid Extract of Rubus, *twenty parts*	20
Syrup, *eighty parts*	80
To make *one hundred parts*	100

Mix them.

SYRUPUS RUBI IDÆI.

SYRUP OF RASPBERRY.

Fresh Ripe Raspberries, *any convenient quantity.*
Sugar, *a sufficient quantity.*

Reduce the Raspberries to a pulp, and let it stand at rest for three days. Separate the juice by pressing, and set it aside until it has completely fermented and become clear, and then filter. To *forty* (40) *parts* of the filtered liquid add *sixty* (60) *parts* of Sugar, heat to boiling, avoiding the use of tinned vessels, and strain.

Keep the Syrup in well-stopped bottles, in a cool and dark place.

SYRUPUS SARSAPARILLÆ COMPOSITUS.

COMPOUND SYRUP OF SARSAPARILLA.

Sarsaparilla, in No. 30 powder, *one hundred and fifty parts*	150
Guaiacum Wood, in No. 30 powder, *twenty parts*	20
Pale Rose, in No. 30 powder, *twelve parts*	12
Glycyrrhiza, in No. 30 powder, *twelve parts*	12
Senna, in No. 30 powder, *twelve parts*	12
Sassafras, in No. 20 powder, *six parts*	6
Anise, in No. 20 powder, *six parts*	6
Gaultheria, in No. 20 powder, *six parts*	6
Sugar, in coarse powder, *six hundred parts*	600
Diluted Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one thousand parts*	1000

Mix the solid ingredients, except the Sugar, with *three hundred* (300) *parts* of Diluted Alcohol, and macerate the mixture for forty-eight hours; then transfer it to a cylindrical percolator, pack it firmly, and gradually pour Diluted Alcohol upon it until *six hundred* (600) *parts* of tincture have been obtained. Evaporate this portion, by means of a water-bath, to *three hundred* (300) *parts*, add *one hundred* (100) *parts* of Water, and filter, adding enough Water, through the filter, to make the whole weigh *four hundred* (400) *parts*. Lastly, add the Sugar, dissolve it by agitation, without heat, and strain.

SYRUPUS SCILLÆ.

SYRUP OF SQUILL.

Vinegar of Squill, *forty parts*	40
Sugar, in coarse powder, *sixty parts*	60
Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Heat the Vinegar of Squill to the boiling point, in a glass or porcelain vessel, and filter while hot, adding, through the filter, enough Water to make the filtrate weigh *forty* (40) *parts*. Add the Sugar, dissolve it by agitation, without heat, and strain.

SYRUPUS SCILLÆ COMPOSITUS.

COMPOUND SYRUP OF SQUILL.

Squill, in No. 30 powder, *one hundred and twenty parts*	120
Senega, in No. 30 powder, *one hundred and twenty parts*	120
Tartrate of Antimony and Potassium, *three parts*	3
Sugar, in coarse powder, *twelve hundred parts*	1200
Precipitated Phosphate of Calcium, *nine parts*	9
Diluted Alcohol,	
Water, each, *a sufficient quantity,*	
To make *two thousand parts*	2000

Mix the Squill and Senega, and, having moistened the mixture with *three hundred* (300) *parts* of Diluted Alcohol, macerate for one hour; then transfer the mixture to a conical percolator, and gradually pour upon it Diluted Alcohol, until *nine hundred* (900) *parts* of tincture are obtained. Boil this portion for a few minutes, and then evaporate it, by means of a water-bath, to *three hundred and sixty* (360) *parts;* having added *one hundred and fifty* (150) *parts* of boiling Water, triturate the mixture with the Precipitated Phosphate of Calcium, filter, and add, through the filter, enough warm Water to make the whole weigh *seven hundred and fifty* (750) *parts.* In this dissolve the Sugar, by agitation, without heat, and strain. Lastly, dissolve the Tartrate of Antimony and Potassium in *forty-seven* (47) *parts* of hot Water, and mix the solution thoroughly with the Syrup.

SYRUPUS SENEGÆ.

SYRUP OF SENEGA.

Fluid Extract of Senega, *one hundred and sixty parts*	160
Water of Ammonia, *four parts*	4
Sugar, in coarse powder, *six hundred parts*	600
Water, *a sufficient quantity,*	
To make *one thousand parts*	1000

Mix the Fluid Extract with *two hundred and fifty* (250) *parts* of Water, add the Water of Ammonia, shake the mixture well, and let it stand for a few hours; then filter through paper, adding, through the filter, enough Water to make the whole weigh *four hundred* (400) *parts.* To the filtered solution add the Sugar, dissolve it by agitation, without heat, and strain.

SYRUPUS SENNÆ.

SYRUP OF SENNA.

Senna, bruised, *thirty-three parts*	33
Sugar, in coarse powder, *sixty parts*	60
Alcohol, *four parts*	4
Oil of Coriander,	
Water, each, *a sufficient quantity*,	
To make *one hundred parts*	100

Digest the Senna in *one hundred and sixty* (160) *parts* of Water, at a temperature not exceeding 50° C. (122° F.), for twenty-four hours, express and strain the liquid. Digest the mass with *seventy* (70) *parts* of Water, at the same temperature, for six hours, and again express and strain. Mix the strained liquids, and evaporate the mixture to *thirty* (30) *parts*. When cold, add the Alcohol, previously mixed with *one* (1) *per cent.* of Oil of Coriander, and filter through paper, adding, through the filter, enough Water to make the whole weigh *forty* (40) *parts*. Then add the Sugar, dissolve it by agitation, without heat, and strain.

SYRUPUS TOLUTANUS.

SYRUP OF TOLU.

Balsam of Tolu, *four parts*	4
Sugar, in coarse powder, *sixty-five parts*	65
Distilled Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Mix the Sugar with *thirty-five* (35) *parts* of Distilled Water, add the Balsam, and digest the whole in a covered vessel, at a temperature not exceeding 82° C. (180° F.), for two hours. When cold, strain through a well-wetted muslin strainer, adding, through the strainer, enough Water to make the Syrup weigh *one hundred* (100) *parts*, and mix thoroughly.

SYRUPUS ZINGIBERIS.

SYRUP OF GINGER.

Fluid Extract of Ginger, *two parts*	2
Sugar, in coarse powder, *sixty-five parts*	65
Water, *a sufficient quantity*,	
To make *one hundred parts*	100

Rub the Fluid Extract of Ginger with *twenty-five* (25) *parts* of Sugar, and expose the mixture to a heat not exceeding 60° C. (140° F.), until all the alcohol has evaporated. Then mix the residue thoroughly, by agitation, with *thirty-five* (35) *parts* of Water, and filter the liquid, adding, through the filter, enough Water to make the whole weigh *sixty* (60) *parts*. Finally, add the remainder of the Sugar, dissolve it by agitation, without heat, and strain.

TABACUM.

TOBACCO.

The commercial, dried leaves of *Nicotiana Tabacum* Linné (Nat. Ord., *Solanaceæ*).

Up to twenty inches (50 centimeters) long, oval or ovate-lanceolate, acute, entire, brown, friable, glandular-hairy, of a heavy, peculiar odor, and a nauseous, bitter and acrid taste.

TAMARINDUS.

TAMARIND.

The preserved pulp of the fruit of *Tamarindus indica* Linné (Nat. Ord., *Leguminosæ, Cæsalpinieæ*).

A reddish-brown, sweet, sub-acid, pulpy mass, containing strong, somewhat branching fibres, and polished, brown, flattish-quadrangular seeds, each enclosed in a tough membrane.

Preparation: Confectio Sennæ.

TANACETUM.

TANSY.

The leaves and tops of *Tanacetum vulgare* Linné (Nat. Ord., *Compositæ*).

Leaves about six inches (15 centimeters) long; bipinnatifid, the segments oblong, obtuse, serrate or incised, smooth, dark green, and glandular; flower-heads corymbose, with an imbricated involucre, a convex, naked receptacle, and numerous yellow, tubular florets; odor strongly aromatic; taste pungent and bitter.

TARAXACUM.

TARAXACUM.

[DANDELION.]

The root of *Taraxacum Dens-leonis* Desfontaines (Nat. Ord., *Compositæ*), gathered in autumn.

Slightly conical, about twelve inches (30 centimeters) long, about one inch (25 millimeters) thick above, crowned with several short, thickish heads, somewhat branched, dark brown, longitudinally wrinkled, when dry breaking with a short fracture, showing a yellowish, porous wood, surrounded by a thick, white bark, containing numerous milk-vessels arranged in concentric circles; inodorous; bitter.

It should be free from the root of *Cichorium Intybus* Linné, which closely resembles it, but is usually paler, and has the milk-vessels in radiating lines.

Preparations: Extractum Taraxaci. Extractum Taraxaci Fluidum.

TEREBINTHINA.

TURPENTINE.

A concrete oleoresin obtained from *Pinus australis* Michaux, and from other species of *Pinus* (Nat. Ord., *Coniferæ*).

In yellowish, tough masses, brittle in the cold, crummy-crystalline in the interior, of a terebinthinate odor and taste.

TEREBINTHINA CANADENSIS.

CANADA TURPENTINE.

[Balsam of Fir.]

A liquid oleoresin obtained from *Abies balsamea* Marshall (Nat. Ord., *Coniferæ*).

A yellowish or faintly greenish, transparent, viscid liquid, of an agreeable terebinthinate odor, and a bitterish, slightly acrid taste; slowly drying on exposure, and then forming a transparent mass; completely soluble in ether, chloroform, or benzol.

THUJA.

THUJA.

[Arbor Vitæ.]

The fresh tops of *Thuja occidentalis* Linné (Nat. Ord., *Coniferæ*).

Twigs flattish, two-edged, the scale-like leaves appressed and closely imbricate in four rows, rhombic-ovate, obtusely pointed, with a roundish gland upon the back; of a balsamic, somewhat terebinthinate odor, and a pungently aromatic, camphoraceous and bitter taste.

THYMOL.

THYMOL.

$C_{10}H_{13}HO$; 150. — $C_{20}H_{13}O.HO$; 150.

Large crystals of the hexagonal system, nearly or quite colorless, having an aromatic, thyme-like odor, a pungent, aromatic taste, with a very slight caustic effect upon the lips, and a neutral reaction. Soluble in about 1200 parts of water, and in 1 part of alcohol at 15° C. (59° F.); in 900 parts of boiling water; freely soluble in boiling alcohol, also in ether, chloroform, benzol, benzin, glacial acetic acid, and in fixed or volatile oils. It liquefies with camphor. Its sp. gr., as a solid, is

1.028; after fusion it is lighter than water. It melts at about 50° C. (122° F.), remaining liquid at lower temperatures, and boils at about 230° C. (446° F.). A portion mixed with half its volume of glacial acetic acid, then with an equal or somewhat greater volume of sulphuric acid, and gently heated, gives a bright, reddish-violet color.

Water saturated with Thymol, when treated with a few drops of test-solution of ferric chloride, should not give a blue color (abs. of carbolic acid).

TINCTURA ACONITI.

TINCTURE OF ACONITE.

Aconite, in No. 60 powder, *four hundred parts*	400
Tartaric Acid, *four parts*	4
Alcohol, *a sufficient quantity,*	
To make *one thousand parts*	1000

Moisten the powder with *two hundred* (200) *parts* of Alcohol, in which the Tartaric Acid has previously been dissolved, and macerate for twenty-four hours; then pack it firmly in a cylindrical glass percolator, and gradually pour Alcohol upon it, until *one thousand* (1000) *parts* of Tincture are obtained.

TINCTURA ALOES.

TINCTURE OF ALOES.

Purified Aloes, in moderately fine powder, *ten parts*	10
Extract of Glycyrrhiza, in moderately fine powder, *ten parts*	10
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the powders with *eighty* (80) *parts* of Diluted Alcohol, and macerate the mixture for seven days, in a closed vessel; then filter through paper, adding, through the filter, enough Diluted Alcohol to make the Tincture weigh *one hundred* (100) *parts.*

TINCTURA ALOES ET MYRRHÆ.

TINCTURE OF ALOES AND MYRRH.

Purified Aloes, in moderately fine powder, *ten parts*	10
Myrrh, in moderately fine powder, *ten parts*	10
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the powders with *eighty* (80) *parts* of Alcohol, and macerate the mixture for seven days, in a closed vessel; then filter through paper, adding, through the filter, enough Alcohol to make the Tincture weigh *one hundred* (100) *parts.*

TINCTURA ARNICÆ FLORUM.

TINCTURE OF ARNICA FLOWERS.

[TINCTURA ARNICÆ, *Pharm.*, 1870.]

Arnica Flowers, in No. 20 powder, *twenty parts*	20
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *forty* (40) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA ARNICÆ RADICIS.

TINCTURE OF ARNICA ROOT.

Arnica Root, in No. 40 powder, *ten parts*	10
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *ten* (10) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA ASAFŒTIDÆ.

TINCTURE OF ASAFETIDA.

Asafetida, bruised, *twenty parts*	20
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the Asafetida with *eighty* (80) *parts* of Alcohol, and macerate for seven days, in a closed vessel; then filter through paper, adding, through the filter, enough Alcohol to make the Tincture weigh *one hundred* (100) *parts.*

Preparation: Mistura Magnesiæ et Asafœtidæ.

TINCTURA AURANTII AMARI.

TINCTURE OF BITTER ORANGE PEEL.

[TINCTURA AURANTII, *Pharm.*, 1870.]

Bitter Orange Peel, in No. 30 powder, *twenty parts*	20
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred parts*....	100

Moisten the powder with *twenty* (20) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it moderately in a conical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA AURANTII DULCIS.

TINCTURE OF SWEET ORANGE PEEL.

Sweet Orange Peel, recently separated from the fresh fruit and deprived of the inner, white layer, *twenty parts*..............	20
Alcohol, *a sufficient quantity*,	
To make *one hundred parts*....	100

Mix the Orange Peel, previously cut into small pieces, with *eighty* (80) *parts* of Alcohol, and macerate for twenty-four hours; then pack it moderately in a conical percolator, and gradually pour Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA BELLADONNÆ.

TINCTURE OF BELLADONNA.

Belladonna Leaves, in No. 60 powder, *fifteen parts*...........	15
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred parts*....	100

Moisten the powder with *twenty* (20) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA BENZOINI.

TINCTURE OF BENZOIN.

Benzoin, in moderately coarse powder, *twenty parts*	20
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the powder with *eighty* (80) *parts* of Alcohol, and macerate for seven days, in a closed vessel; then filter through paper, adding, through the filter, enough Alcohol to make the Tincture weigh *one hundred* (100) *parts*.

TINCTURA BENZOINI COMPOSITA.

COMPOUND TINCTURE OF BENZOIN.

Benzoin, in coarse powder, *twelve parts*	12
Purified Aloes, in coarse powder, *two parts*	2
Storax, *eight parts*	8
Balsam of Tolu, *four parts*	4
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the Benzoin, Aloes, Storax, and Balsam of Tolu with *seventy-five* (75) *parts* of Alcohol, and macerate the mixture for seven days, in a closed vessel; then filter through paper, adding, through the filter, enough Alcohol to make the Tincture weigh *one hundred* (100) *parts*.

TINCTURA BRYONIÆ.

TINCTURE OF BRYONIA.

Bryonia, recently dried and in No. 40 powder, *ten parts*	10
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *ten* (10) *parts* of Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA CALENDULÆ.

TINCTURE OF CALENDULA.

Calendula, in No. 20 powder, *twenty parts*	20
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *forty* (40) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA CALUMBÆ.

TINCTURE OF CALUMBA.

Calumba, in No. 20 powder, *ten parts*	10
Alcohol, **Water**, each, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix Alcohol and Water in the proportion of *three* (3) *parts* of Alcohol to *two* (2) *parts* of Water, and, having moistened the powder with *ten* (10) *parts* of the mixture, macerate for twenty-four hours; then pack it in a cylindrical percolator, and gradually pour menstruum upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA CANNABIS INDICÆ.

TINCTURE OF INDIAN CANNABIS.

[TINCTURA CANNABIS, *Pharm.*, 1870.]

Indian Cannabis, in No. 40 powder, *twenty parts*	20
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *twenty* (20) *parts* of Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA CANTHARIDIS.

TINCTURE OF CANTHARIDES.

Cantharides, in No. 60 powder, *five parts*	5
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *three* (3) *parts* of Alcohol, and pack it firmly in a cylindrical percolator; then gradually pour Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA CAPSICI.

TINCTURE OF CAPSICUM.

Capsicum, in No. 30 powder, *five parts*	5
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix Alcohol and Water in the proportion of *nineteen* (19) *parts* of Alcohol to *one* (1) *part* of Water, and, having moistened the powder with *three* (3) *parts* of the mixture, pack it firmly in a cylindrical percolator; then gradually pour menstruum upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA CARDAMOMI.

TINCTURE OF CARDAMOM.

Cardamom, in No. 30 powder, *fifteen parts*	15
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *fifteen* (15) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA CARDAMOMI COMPOSITA.

COMPOUND TINCTURE OF CARDAMOM.

Cardamom, *twenty parts*	20
Cinnamon, *twenty parts*	20
Caraway, *ten parts*	10
Cochineal, *five parts*	5
Glycerin, *sixty parts*	60
Diluted Alcohol, *a sufficient quantity,*	
To make *one thousand parts*	1000

Mix the Cardamom, Cinnamon, Caraway, and Cochineal, and reduce them to a moderately coarse (No. 40) powder. Having moistened the powder with *twenty-five* (25) *parts* of Diluted Alcohol, pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *nine hundred and forty* (940) *parts* of Tincture are obtained ; then add the Glycerin and mix them.

TINCTURA CATECHU COMPOSITA.

COMPOUND TINCTURE OF CATECHU.

[TINCTURA CATECHU, *Pharm.*, 1870.]

Catechu, in No. 40 powder, *twelve parts*	12
Cinnamon, in No. 40 powder, *eight parts*	8
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the powders, and, having moistened the mixture with *fifteen* (15) *parts* of Diluted Alcohol, macerate for twenty-four hours ; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA CHIRATÆ.

TINCTURE OF CHIRATA.

Chirata, in No. 40 powder, *ten parts*	10
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *ten* (10) *parts* of Diluted Alcohol, and macerate for twenty-four hours ; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA CIMICIFUGÆ.

TINCTURE OF CIMICIFUGA.

Cimicifuga, in No. 60 powder, *twenty parts*	20
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *fifteen* (15) *parts* of Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA CINCHONÆ.

TINCTURE OF CINCHONA.

Yellow Cinchona, in No. 60 powder, *twenty parts*	20
Glycerin, *ten parts*	10
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the Glycerin with *sixty-five* (65) *parts* of Alcohol and *twenty-five* (25) *parts* of Water, and, having moistened the powder with *twenty* (20) *parts* of the mixture, macerate for twenty-four hours; then pack it firmly in a cylindrical glass percolator, and gradually pour on the remainder of the mixture. When the liquid has disappeared from the surface, gradually pour on more of the mixture of Alcohol and Water, using the same proportions as before, and continue the percolation, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA CINCHONÆ COMPOSITA.

COMPOUND TINCTURE OF CINCHONA.

Red Cinchona, *ten parts*	10
Bitter Orange Peel, *eight parts*	8
Serpentaria, *two parts*	2
Glycerin, *ten parts*	10
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the Glycerin with *eighty* (80) *parts* of Alcohol and *ten* (10) *parts* of Water. Having mixed the Cinchona, Orange Peel, and Serpentaria, reduce them to a fine (No. 60) powder. Moisten the powder with *twenty* (20) *parts* of the menstruum, and macerate for twenty-four hours; then pack it firmly in a cylindrical glass percolator, and gradually pour on the remainder of the menstruum. When the liquid has disappeared from the surface, gradually pour upon it enough of a mixture of Alcohol and Water, using the same proportions as before, and continue the percolation, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA CINNAMOMI.

TINCTURE OF CINNAMON.

Cinnamon, in No. 40 powder, *ten parts*	10
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred parts*	100

Mix Alcohol and Water in the proportion of *three* (3) *parts* of Alcohol to *two* (2) *parts* of Water, and, having moistened the powder with *five* (5) *parts* of menstruum, pack it in a conical percolator, and gradually pour menstruum upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA COLCHICI.

TINCTURE OF COLCHICUM.

Colchicum Seed, in No. 30 powder, *fifteen parts*	15
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the powder with *fifteen* (15) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it moderately in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA CONII.

TINCTURE OF CONIUM.

Conium, in No. 30 powder, *one hundred and fifty parts*	150
Diluted Hydrochloric Acid, *four parts*	4
Diluted Alcohol, *a sufficient quantity*,	
To make *one thousand parts*	1000

Moisten the powder with *forty-five* (45) *parts* of Diluted Alcohol, previously mixed with the Diluted Hydrochloric Acid, and macerate for twenty-four hours; then pack it moderately in a conical glass percolator, and gradually pour Diluted Alcohol upon it, until *one thousand* (1000) *parts* of Tincture are obtained.

TINCTURA CROCI.

TINCTURE OF SAFFRON.

Saffron, *ten parts*	10
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the Saffron with *ten* (10) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA CUBEBÆ.

TINCTURE OF CUBEB.

Cubeb, in No. 30 powder, *ten parts*	10
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *ten* (10) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA DIGITALIS.

TINCTURE OF DIGITALIS.

Digitalis, recently dried and in No. 60 powder, *fifteen parts*	15
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *fifteen* (15) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURÆ HERBARUM RECENTIUM.

TINCTURES OF FRESH HERBS.

These Tinctures, when not otherwise directed, are to be prepared by the following formula:

Take of

The Fresh Herb, bruised or crushed, *fifty parts*	50
Alcohol, *one hundred parts*	100

Macerate the Herb with the Alcohol for fourteen days; then express the liquid and filter.

TINCTURA FERRI ACETATIS.

TINCTURE OF ACETATE OF IRON.

[TINCTURE OF FERRIC ACETATE.]

Solution of Acetate of Iron, *fifty parts*	50
Alcohol, *thirty parts*	30
Acetic Ether, *twenty parts*	20
To make *one hundred parts*	100

Mix the Alcohol and Acetic Ether, and gradually add the Solution of Acetate of Iron, taking care that the mixture remains cool.

Keep the Tincture in glass-stoppered bottles, in a cool and dark place.

A clear, dark reddish-brown liquid, transparent in thin layers, having the odor of acetic ether, an acidulous and astringent taste, and a slightly acid reaction. Sp. gr. about 0.950. It is miscible, in all proportions, with water, without becoming turbid. The Tincture, diluted with water, affords a brownish-red precipitate with water of ammonia, and a blue one with test-solution of ferrocyanide of potassium. When mixed with sulphuric acid, and gently warmed, it evolves acetous vapors. If the iron be completely precipitated from a portion of the diluted tincture by excess of water of ammonia, the filtrate should not yield either a white or a dark-colored precipitate with hydrosulphuric acid (abs. of zinc, copper). Another portion of the filtrate should not leave any fixed residue on evaporation and gentle ignition (abs. of fixed alkalies). A few drops added to freshly-prepared test-solution of ferricyanide of potassium should impart to the latter a pure greenish-brown color without a trace of blue (abs. of ferrous salt).

20 Gm. of the Tincture carefully evaporated and, after addition of a few drops of nitric acid, ignited, should yield a residue weighing 1.12 Gm.

TINCTURA FERRI CHLORIDI.

TINCTURE OF CHLORIDE OF IRON.

[Tincture of Ferric Chloride.]

Solution of Chloride of Iron, *thirty-five parts*................	35
Alcohol, *sixty-five parts*..................................	65
To make *one hundred parts*....	100

Mix the Solution with the Alcohol, and let it stand, in a closely-covered vessel, at least three months; then transfer it to glass-stoppered bottles.

A bright, brownish liquid of a slightly ethereal odor, a very astringent, styptic taste, and an acid reaction. Sp. gr. about 0.980. The Tincture affords a brownish-red precipitate with water of ammonia, a blue one with test-solution of ferrocyanide of potassium, and a white one, insoluble in nitric acid, with test-solution of nitrate of silver. If the iron be completely precipitated from a portion of the Tincture by excess of water of ammonia, the filtrate should not yield either a white or a dark colored precipitate with hydrosulphuric acid (abs. of zinc, copper). Another portion of the filtrate should leave no fixed residue on evaporation and gentle ignition (abs. of fixed alkalies). On adding a clear crystal of ferrous sulphate to a cooled mixture of equal volumes of concentrated sulphuric acid and the moderately diluted Tincture, the crystal should not become brown, nor should there be a brownish-black zone developed around it (abs. of nitric acid). A few drops added to freshly-prepared test-solution of ferricyanide of potassium should impart to the latter a pure greenish-brown color without a trace of blue (abs. of ferrous salt). On diluting 8 parts of the Tincture with distilled water to 100 parts, and boiling in a test-tube, the liquid should remain clear (abs. of oxychloride).

10 Gm. of the Tincture, when completely precipitated by excess of water of ammonia, yield a precipitate which, when washed, dried and ignited, should weigh 0.652 Gm.

Preparation: Mistura Ferri et Ammonii Acetatis.

TINCTURA GALLÆ.

TINCTURE OF NUTGALL.

Nutgall, in No. 40 powder, *twenty parts*......................	20
Glycerin, *ten parts*......................................	10
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred parts*....	100

Mix the Glycerin with *ninety* (90) *parts* of Diluted Alcohol, and, having moistened the powder with ten parts of the mixture, pack it in a conical glass percolator; then gradually pour upon it, first, the remainder of the mixture, and afterward, Diluted Alcohol, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA GELSEMII.

TINCTURE OF GELSEMIUM.

Gelsemium, in No. 60 powder, *fifteen parts*	15
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *ten* (10) *parts* of Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA GENTIANÆ COMPOSITA.

COMPOUND TINCTURE OF GENTIAN.

Gentian, *eight parts*	8
Bitter Orange Peel, *four parts*	4
Cardamom, *two parts*	2
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the Gentian, Orange Peel, and Cardamom, and reduce the mixture to a moderately coarse (No. 40) powder. Moisten the powder with *ten* (10) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA GUAIACI.

TINCTURE OF GUAIAC.

Guaiac, in coarse powder, *twenty parts*	20
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the powder with *eighty* (80) *parts* of Alcohol, and macerate for seven days, in a closed vessel; then filter through paper, adding, through the filter, enough Alcohol to make the Tincture weigh *one hundred* (100) *parts.*

TINCTURA GUAIACI AMMONIATA.

AMMONIATED TINCTURE OF GUAIAC.

Guaiac, in coarse powder, *twenty parts*	20
Aromatic Spirit of Ammonia, *a sufficient quantity*,	
To make *one hundred parts*	100

Mix the powder with *eighty* (80) *parts* of Aromatic Spirit of Ammonia, and macerate for seven days, in a closed vessel; then filter through paper, adding, through the filter, Aromatic Spirit of Ammonia, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA HUMULI.

TINCTURE OF HOPS.

Hops, well dried and in No. 20 powder, *twenty parts*	20
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the powder with *forty* (40) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA HYDRASTIS.

TINCTURE OF HYDRASTIS.

Hydrastis, in No. 60 powder, *twenty parts*	20
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the powder with *fifteen* (15) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA HYOSCYAMI.

TINCTURE OF HYOSCYAMUS.

Hyoscyamus, recently dried and in No. 60 powder, *fifteen parts*	15
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the powder with *fifteen* (15) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA IGNATIÆ.

TINCTURE OF IGNATIA.

Ignatia, in No. 60 powder, *ten parts*	10
Alcohol,	
Water, each, *a sufficient quantity.*	

Mix Alcohol and Water in the proportion of *eight* (8) *parts* of Alcohol to *one* (1) *part* of Water. Moisten the powder with *ten* (10) *parts* of the menstruum, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour menstruum upon it, until the Ignatia is exhausted. Reserve the first *ninety* (90) *parts* of the percolate, evaporate the remainder to *ten* (10) *parts*, and mix with the reserved portion. Of this Tincture take any convenient number of parts, and, by means of a water-bath, evaporate it to dryness. Weigh the resulting extract, and from its weight calculate the quantity of extract contained in the one hundred parts of Tincture obtained; then dissolve the dried extract in the remainder of the Tincture, and add enough of the above menstruum to make the product weigh so many parts that each *one hundred* (100) *parts* of Tincture shall contain *one* (1) *part* of dry extract. Lastly, mix thoroughly, and filter through paper.

Tincture of Ignatia thus prepared represents about 10 parts of Ignatia in 100 parts.

TINCTURA IODI.

TINCTURE OF IODINE.

[TINCTURA IODINII, *Pharm.*, 1870.]

Iodine, *eight parts*	8
Alcohol, *ninety-two parts*	92
To make *one hundred parts*	100

Dissolve the Iodine in the Alcohol.

6.33 Gm. of the Tincture, mixed with a solution of 2 Gm. of iodide of potassium in 25 C.c. of water and a little gelatinized starch, should require, for complete decoloration, 40 C.c. of the volumetric solution of hyposulphite of sodium.

TINCTURA IPECACUANHÆ ET OPII.

TINCTURE OF IPECAC AND OPIUM.

Deodorized Tincture of Opium, *one hundred parts*	100
Fluid Extract of Ipecac, *ten parts*	10
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred parts*	100

Evaporate the Deodorized Tincture of Opium, on a water-bath, until it weighs *eighty-five* (85) *parts*. When it has become cold, add to it the Fluid Extract of Ipecac, filter the mixture and pass enough Diluted Alcohol through the filter to make the Tincture weigh *one hundred* (100) *parts*.

TINCTURA KINO.

TINCTURE OF KINO.

Kino, *ten parts*	10
Glycerin, *fifteen parts*	15
Alcohol,	
Water, each, *a sufficient quantity*,	
To make *one hundred parts*	100

Mix the Glycerin with *sixty* (60) *parts* of Alcohol and *fifteen* (15) *parts* of Water. Rub the Kino in a mortar, adding, gradually, *thirty* (30) *parts* of this menstruum, until a smooth paste is made; transfer this to a bottle, add the remainder of the menstruum, and macerate for twenty-four hours, occasionally shaking the bottle; then filter through paper, adding, through the filter, enough of a mixture of Alcohol and Water, made in the proportion of *four* (4) *parts* of Alcohol to *one* (1) *part* of Water, to make the Tincture weigh *one hundred* (100) *parts*.

Keep the Tincture in well-stopped bottles.

TINCTURA KRAMERIÆ.

TINCTURE OF KRAMERIA.

Krameria, in No. 40 powder, *twenty parts*	20
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the powder with *twenty* (20) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA LAVANDULÆ COMPOSITA.

COMPOUND TINCTURE OF LAVENDER.

[Spiritus Lavandulæ Compositus, *Pharm.*, 1870.]

Oil of Lavender, *eight parts*	8
Oil of Rosemary, *two parts*	2
Cinnamon, in coarse powder, *eighteen parts*	18
Cloves, *four parts*	4
Nutmeg, *ten parts*	10
Red Saunders, in coarse powder, *eight parts*	8
Alcohol, *six hundred and eighty parts*	680
Water, *two hundred and seventy parts*	270
Diluted Alcohol, *a sufficient quantity,*	
To make *one thousand parts*	1000

Dissolve the Oils in the Alcohol and add the Water. Crush the Nutmeg in a mortar, mix it with the Cinnamon, Cloves, and Red Saunders, and reduce the mixture, by grinding, to a coarse (No. 20) powder. Moisten the mixture with a sufficient quantity of the alcoholic solution of the Oils, pack it firmly in a cylindrical percolator, gradually pour upon it the remainder of the alcoholic solution, and afterward, Diluted Alcohol, until *one thousand* (1000) *parts* of Tincture are obtained.

TINCTURA LOBELIÆ.

TINCTURE OF LOBELIA.

Lobelia, in No. 40 powder, *twenty parts*	20
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *twenty* (20) *parts* of Diluted Alcohol, and macerate for twenty four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA MATICO.

TINCTURE OF MATICO.

Matico, in No. 40 powder, *ten parts*	10
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the Matico with *ten* (10) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA MOSCHI.

TINCTURE OF MUSK.

Musk, *ten parts*	10
Alcohol, *forty-five parts*	45
Water, *forty-five parts*	45
Diluted Alcohol, *a sufficient quantity*,	
To make *one hundred parts*	100

Rub the Musk in a mortar, first, with a little of the Water, until a smooth mixture is made, and then with the remainder of the Water. Transfer the whole to a bottle, add the Alcohol, and macerate the mixture for seven days, occasionally shaking the bottle. Then filter through paper, adding, through the filter, enough Diluted Alcohol to make the Tincture weigh *one hundred* (100) *parts.*

TINCTURA MYRRHÆ.

TINCTURE OF MYRRH.

Myrrh, in moderately coarse powder, *twenty parts*	20
Alcohol, *a sufficient quantity*,	
To make *one hundred parts*	100

Mix the powder with *eighty* (80) *parts* of Alcohol, and macerate for seven days in a closed vessel; then filter through paper, adding, through the filter, enough Alcohol to make the Tincture weigh *one hundred* (100) *parts.*

TINCTURA NUCIS VOMICÆ.

TINCTURE OF NUX VOMICA.

Nux Vomica, in No. 60 powder, *twenty parts*	20
Alcohol,	
Water, each, *a sufficient quantity.*	

Mix Alcohol and Water in the proportion of *eight* (8) *parts* of Alcohol to *one* (1) *part* of Water. Moisten the powder with *twenty* (20) *parts* of the mixture, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour menstruum upon it, until the Nux Vomica is exhausted. Reserve the first *ninety* (90) *parts* of the percolate, evaporate the remainder to *ten* (10) *parts*, and mix with the reserved portion. Of this Tincture take any convenient number of parts, and, by means of a water-bath, evaporate to dryness; weigh the resulting extract, and from its weight calculate the quantity of dry extract contained in the one hundred parts of Tincture; then dissolve the dried extract in the remainder of the Tincture, and add enough of the above menstruum to make the product weigh so many parts, that each *one hundred* (100) *parts* of Tincture shall contain *two* (2) *parts* of dry extract. Lastly, mix thoroughly, and filter through paper.

Tincture of Nux Vomica thus prepared represents about 20 parts of Nux Vomica in 100 parts.

TINCTURA OPII.

TINCTURE OF OPIUM.

Powdered Opium, *ten parts*	10
Water, *forty parts*	40
Alcohol, *forty parts*	40
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Rub the Opium in a mortar, with the Water previously heated to the temperature of 90° C. (194° F.), until a smooth mixture is made, and macerate for twelve hours; then add the Alcohol, mix thoroughly, and transfer the whole to a conical percolator. Return to the percolator the first portion of percolate, until it becomes clear, and, when the liquid ceases to drop, gradually pour on Diluted Alcohol, continuing the percolation until *one hundred* (100) *parts* of Tincture are obtained.

Preparation: Mistura Magnesiæ et Asafœtidæ.

TINCTURA OPII CAMPHORATA.

CAMPHORATED TINCTURE OF OPIUM.

Powdered Opium, *four parts*	4
Benzoic Acid, *four parts*	4
Camphor, *four parts*	4
Oil of Anise, *four parts*	4
Glycerin, *forty parts*	40
Diluted Alcohol, *a sufficient quantity,*	
To make *one thousand parts*	1000

Add *nine hundred* (900) *parts* of Diluted Alcohol to the other ingredients, contained in a suitable vessel, and macerate for seven days, frequently stirring; then filter through paper, in a well-covered funnel, and pass enough Diluted Alcohol through the filter to make the product weigh *one thousand* (1000) *parts*.

Preparation: Mistura Glycyrrhizæ Composita.

TINCTURA OPII DEODORATA.

DEODORIZED TINCTURE OF OPIUM.

Powdered Opium, *ten parts*	10
Ether, *twenty parts*	20
Alcohol, *twenty parts*	20
Water, *a sufficient quantity,*	
To make *one hundred parts*	100

Rub the Opium in a mortar with *forty* (40) *parts* of Water, gradually added, until thoroughly softened, and macerate for twelve hours; then express, and repeat the operation twice, using the same amount of Water each time. Mix the expressed liquids, evaporate the mixture to *ten* (10) *parts*, and, when it has cooled, shake it repeatedly with the Ether in a bottle. When the ethereal solution has separated by standing, pour it off, and evaporate the remaining liquid until all traces of Ether have disappeared. Mix the residue with *fifty* (50) parts of Water, and filter the mixture through paper. When the liquid has ceased to pass, add enough Water, through the filter, to make the filtered liquid weigh *eighty* (80) *parts*. Lastly, add the Alcohol and mix them.

Preparation: Tinctura Ipecacuanhæ et Opii.

TINCTURA PHYSOSTIGMATIS.

TINCTURE OF PHYSOSTIGMA.

Physostigma, in No. 40 powder, *ten parts*	10
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *ten* (10) *parts* of Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA PYRETHRI.

TINCTURE OF PYRETHRUM.

Pyrethrum, in No. 40 powder, *twenty parts*	20
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *fifteen* (15) *parts* of Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA QUASSIÆ.

TINCTURE OF QUASSIA.

Quassia, in No. 40 powder, *ten parts*	10
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *ten* (10) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA RHEI.

TINCTURE OF RHUBARB.

Rhubarb, *twelve parts*	12
Cardamom, *two parts*	2
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the Rhubarb and Cardamom, and reduce the mixture to a moderately coarse (No. 40) powder; moisten the powder with *ten* (10) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA RHEI AROMATICA.

AROMATIC TINCTURE OF RHUBARB.

Rhubarb, *twenty parts*	20
Cinnamon, *four parts*	4
Cloves, *four parts*	4
Nutmeg, *two parts*	2
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the Rhubarb, Cinnamon, Cloves, and Nutmeg, and reduce the mixture to a moderately coarse (No. 40) powder; moisten the powder with *fifteen* (15) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

Preparation: Syrupus Rhei Aromaticus.

TINCTURA RHEI DULCIS.

SWEET TINCTURE OF RHUBARB.

Rhubarb, *eight parts*	8
Glycyrrhiza, *four parts*	4
Anise, *four parts*	4
Cardamom, *one part*	1
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the Rhubarb, Glycyrrhiza, Anise, and Cardamom, and reduce the mixture to a moderately coarse (No. 40) powder; moisten the powder with *fifteen* (15) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA SANGUINARIÆ.

TINCTURE OF SANGUINARIA.

Sanguinaria, in No. 60 powder, *fifteen parts*	15
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix Alcohol and Water in the proportion of *two* (2) *parts* of Alcohol to *one* (1) *part* of Water. Moisten the powder with *ten* (10) *parts* of the mixture, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour menstruum upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA SAPONIS VIRIDIS.

TINCTURE OF GREEN SOAP.

Green Soap, *sixty-five parts*	65
Oil of Lavender, *two parts*	2
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the Soap and Oil of Lavender with *thirty-three* (33) *parts* of Alcohol, and let the mixture macerate until the Soap is dissolved; then filter through paper, adding Alcohol, through the filter, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA SCILLÆ.

TINCTURE OF SQUILL.

Squill, in No. 30 powder, *fifteen parts*	15
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *twenty* (20) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it moderately in a conical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA SERPENTARIÆ.

TINCTURE OF SERPENTARIA.

Serpentaria, in No. 40 powder, *ten parts*	10
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *ten* (10) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA STRAMONII.

TINCTURE OF STRAMONIUM.

Stramonium Seed, in No. 40 powder, *ten parts*	10
Diluted Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *ten* (10) *parts* of Diluted Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Diluted Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA SUMBUL.

TINCTURE OF SUMBUL.

Sumbul, in No. 30 powder, *ten parts*	10
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *ten* (10) *parts* of Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA TOLUTANA.

TINCTURE OF TOLU.

Balsam of Tolu, *ten parts*	10
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Add the Balsam of Tolu to *ninety* (90) *parts* of Alcohol, and macerate until dissolved; then filter through paper, adding, through the filter, enough Alcohol to make the Tincture weigh *one hundred* (100) *parts.*

TINCTURA VALERIANÆ.

TINCTURE OF VALERIAN.

Valerian, in No. 60 powder, *twenty parts*	20
Alcohol,	
Water, each, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix Alcohol and Water in the proportion of *two* (2) *parts* of Alcohol to *one* (1) *part* of Water. Moisten the powder with *fifteen* (15) *parts* of the mixture, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour menstruum upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA VALERIANÆ AMMONIATA.

AMMONIATED TINCTURE OF VALERIAN.

Valerian, in No. 60 powder, *twenty parts*	20
Aromatic Spirit of Ammonia, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the powder with *twenty* (20) *parts* of Aromatic Spirit of Ammonia, and macerate for twenty-four hours, in a closed vessel; then pack it firmly in a cylindrical glass percolator, and gradually pour Aromatic Spirit of Ammonia upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA VANILLÆ.

TINCTURE OF VANILLA.

Vanilla, cut into small pieces and bruised, *ten parts*	10
Sugar, in coarse powder, *twenty parts*	20
Alcohol, **Water**, each, *a sufficient quantity*,	
To make *one hundred parts*	100

Mix Alcohol and Water in the proportion of *two* (2) *parts* of Alcohol to *one* (1) *part* of Water; macerate the Vanilla in *fifty* (50) *parts* of this mixture for twelve hours, then drain off the liquid, and set it aside. Transfer the Vanilla to a mortar, beat it with the Sugar into a uniform powder, then pack it in a percolator, and pour upon it the reserved liquid; when this has disappeared from the surface, gradually pour on menstruum, and continue the percolation, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA VERATRI VIRIDIS.

TINCTURE OF VERATRUM VIRIDE.

Veratrum Viride, in No. 60 powder, *fifty parts*	50
Alcohol, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the powder with *fifteen* (15) *parts* of Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

TINCTURA ZINGIBERIS.

TINCTURE OF GINGER.

Ginger, in No. 40 powder, *twenty parts*	20
Alcohol, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the Ginger with *five* (5) *parts* of Alcohol, and macerate for twenty-four hours; then pack it firmly in a cylindrical percolator, and gradually pour Alcohol upon it, until *one hundred* (100) *parts* of Tincture are obtained.

Preparation: Trochisci Zingiberis.

TRAGACANTHA.

TRAGACANTH.

A gummy exudation from *Astragalus gummifer* Labillardière, and from other species of *Astragalus* (Nat. Ord., *Leguminosæ, Papilionaceæ*).

In narrow or broad bands, more or less curved or contorted, marked by parallel lines or ridges, white or faintly yellowish, translucent, horn-like, tough, rendered more easily pulverizable by a heat of 50° C. (122° F.), swelling with water to a gelatinous mass, which is tinged blue by test-solution of iodine, and the fluid portion of which is not precipitated on the addition of alcohol.

Preparation: Mucilago Tragacanthæ.

TRITICUM.

TRITICUM.

[COUCH-GRASS.]

The rhizome of *Triticum repens* Linné (Nat. Ord., *Graminaceæ*), gathered in the spring and deprived of the rootlets.

Very long, but, as met with in the shops, cut into sections about two-fifths of an inch (1 centimeter) long, and about one-twelfth of an inch (2 millimeters) thick; creeping, smooth, hollow in the centre, straw-yellow, inodorous and of a sweet taste.

Preparation: Extractum Tritici Fluidum.

TRITURATIONES.

TRITURATIONS.

Triturations are to be prepared by the following formula:

Take of	
The Substance, *ten parts*	10
Sugar of Milk, in moderately fine powder, *ninety parts*	90
To make *one hundred parts*	100

Weigh the Substance and Sugar of Milk, separately; then place the Substance, previously reduced, if necessary, to a moderately fine powder, in a mortar; add about an equal bulk of Sugar of Milk, mix well by means of a spatula and triturate them thoroughly together. Add fresh portions of the Sugar of Milk, from time to time, until the whole is added, and continue the trituration until the Substance is intimately mixed with the Sugar of Milk and finely comminuted.

TRITURATIO ELATERINI.

TRITURATION OF ELATERIN.

Elaterin, *ten parts*	10
Sugar of Milk, in moderately fine powder, *ninety parts*	90
To make *one hundred parts*	100

Mix them thoroughly by trituration.

TROCHISCI ACIDI TANNICI.

TROCHES OF TANNIC ACID.

	Grains.	Grammes.
Tannic Acid, *one hundred grains*	100	6.50
Sugar, in fine powder, *one thousand grains*	1000	65.00
Tragacanth, in fine powder, *twenty-five grains*	25	1.60
Orange Flower Water, *a sufficient quantity,*		
To make *one hundred troches*	100	

Rub the powders together until they are thoroughly mixed; then, with Orange Flower Water, form a mass, to be divided into *one hundred* (100) *troches.*

TROCHISCI AMMONII CHLORIDI.

TROCHES OF CHLORIDE OF AMMONIUM.

	Grains.	Grammes.
Chloride of Ammonium, in fine powder, *two hundred grains*	200	13.00
Sugar, in fine powder, *one thousand grains*	1000	65.00
Tragacanth, in fine powder, *twenty-five grains*	25	1.60
Syrup of Tolu, *a sufficient quantity*,		
To make *one hundred troches*	100	

Rub the powders together until they are thoroughly mixed; then, with Syrup of Tolu, form a mass, to be divided into *one hundred* (100) *troches.*

TROCHISCI CATECHU.

TROCHES OF CATECHU.

	Grains.	Grammes.
Catechu, in fine powder, *one hundred grains*	100	6.50
Sugar, in fine powder, *one thousand grains*	1000	65.00
Tragacanth, in fine powder, *twenty-five grains*	25	1.60
Orange Flower Water, *a sufficient quantity*,		
To make *one hundred troches*	100	

Rub the powders together until they are thoroughly mixed; then, with Orange Flower Water, form a mass, to be divided into *one hundred* (100) *troches.*

TROCHISCI CRETÆ.

TROCHES OF CHALK.

	Grains.	Grammes.
Prepared Chalk, *four hundred grains*	400	26.00
Acacia, in fine powder, *one hundred grains*	100	6.50
Nutmeg, in fine powder, *fifteen grains*	15	1.00
Sugar, in fine powder, *six hundred grains*	600	39.00
To make *one hundred troches*	100	

Rub them together until they are thoroughly mixed; then, with water, form a mass, to be divided into *one hundred* (100) *troches.*

TROCHISCI CUBEBÆ.

TROCHES OF CUBEB.

	Grains.	Grammes.
Oleoresin of Cubeb, *fifty grains*	50	3.25
Oil of Sassafras, *fifteen grains*	15	1.00
Extract of Glycyrrhiza, in fine powder, *four hundred grains*	400	26.00
Acacia, in fine powder, *two hundred grains*	200	13.00
Syrup of Tolu, *a sufficient quantity,*		
To make *one hundred troches*	100	

Rub the powders together until they are thoroughly mixed; then add the Oleoresin and Oil, and incorporate them with the mixture. Lastly, with Syrup of Tolu, form a mass, to be divided into *one hundred* (100) *troches.*

TROCHISCI FERRI.

TROCHES OF IRON.

	Grains.	Grammes.
Hydrated Oxide of Iron, dried at a temperature not exceeding 80° C. (176° F.), *five hundred grains*	500	32.50
Vanilla, cut into slices, *ten grains*	10	0.65
Sugar, in fine powder, *fifteen hundred grains*	1500	97.50
Mucilage of Tragacanth, *a sufficient quantity,*		
To make *one hundred troches*	100	

Rub the Vanilla, first, with a portion of the Sugar to a uniform powder, and afterward, with the Oxide of Iron and the remainder of the Sugar, until they are thoroughly mixed. Then, with Mucilage of Tragacanth, form a mass, to be divided into *one hundred* (100) *troches.*

TROCHISCI GLYCYRRHIZÆ ET OPII.

TROCHES OF GLYCYRRHIZA AND OPIUM.

	Grains.	Grammes.
Extract of Glycyrrhiza, in fine powder, *two hundred grains*	200	13.00
Extract of Opium, in fine powder, *five grains*	5	0.32
Acacia, in fine powder, *two hundred grains*	200	13.00
Sugar, in fine powder, *three hundred grains*	300	19.50
Oil of Anise, *three grains*	3	0.20
To make *one hundred troches*	100	

Rub the powders together until they are thoroughly mixed; then add the Oil of Anise, and incorporate it with the mixture. Lastly, with water, form a mass, to be divided into *one hundred* (100) *troches*.

TROCHISCI IPECACUANHÆ.

TROCHES OF IPECAC.

	Grains.	Grammes.
Ipecac, in fine powder, *twenty-five grains*	25	1.60
Tragacanth, in fine powder, *twenty-five grains*	25	1.60
Sugar, in fine powder, *one thousand grains*	1000	65.00
Syrup of Orange, *a sufficient quantity*,		
To make *one hundred troches*	100	

Rub the powders together until they are thoroughly mixed; then, with Syrup of Orange, form a mass, to be divided into *one hundred* (100) *troches*.

TROCHISCI KRAMERIÆ.

TROCHES OF KRAMERIA.

	Grains.	Grammes.
Extract of Krameria, *one hundred grains*	100	6.50
Sugar, in fine powder, *one thousand grains*	1000	65.00
Tragacanth, in fine powder, *twenty-five grains*	25	1.60
Orange Flower Water, *a sufficient quantity*,		
To make *one hundred troches*	100	

Rub the powders together until they are thoroughly mixed; then, with Orange Flower Water, form a mass, to be divided into *one hundred* (100) *troches*.

TROCHISCI MAGNESIÆ.

TROCHES OF MAGNESIA.

	Grains.	Grammes.
Magnesia, *three hundred grains*	300	19.50
Nutmeg, in fine powder, *fifteen grains*	15	1.00
Sugar, in fine powder, *nine hundred grains*	900	58.50
Mucilage of Tragacanth, *a sufficient quantity*,		
To make *one hundred troches*	100	

Rub the Magnesia and the powders together until they are thoroughly mixed; then, with Mucilage of Tragacanth, form a mass, to be divided into *one hundred* (100) *troches*.

TROCHISCI MENTHÆ PIPERITÆ.

TROCHES OF PEPPERMINT.

	Grains.	Grammes.
Oil of Peppermint, *fifteen grains*	15	1.00
Sugar, in fine powder, *twelve hundred grains*	1200	78.00
Mucilage of Tragacanth, *a sufficient quantity*,		
To make *one hundred troches*....	100	

Rub the Oil of Peppermint and the Sugar together until they are thoroughly mixed; then, with Mucilage of Tragacanth, form a mass, to be divided into *one hundred* (100) *troches.*

TROCHISCI MORPHINÆ ET IPECACUANHÆ.

TROCHES OF MORPHINE AND IPECAC.

	Grains.	Grammes.
Sulphate of Morphine, *five grains*	5	0.32
Ipecac, in fine powder, *sixteen grains*	16	1.00
Sugar, in fine powder, *two thousand grains*	2000	130.00
Oil of Gaultheria, *two grains*	2	0.13
Mucilage of Tragacanth, *a sufficient quantity*,		
To make *two hundred troches*....	200	

Rub the powders together until they are thoroughly mixed; then add the Oil of Gaultheria, and incorporate it with the mixture. Lastly, with Mucilage of Tragacanth, form a mass, to be divided into *two hundred* (200) *troches.*

TROCHISCI POTASSII CHLORATIS.

TROCHES OF CHLORATE OF POTASSIUM.

	Grains.	Grammes.
Chlorate of Potassium, in fine powder, *five hundred grains*	500	32.50
Sugar, in fine powder, *nineteen hundred grains*	1900	124.00
Tragacanth, in fine powder, *one hundred grains*	100	6.50
Spirit of Lemon, *ten grains*	10	0.65
To make *one hundred troches*....	100	

Mix the Sugar with the Tragacanth and the Spirit of Lemon by trituration, in a mortar; then transfer the mixture to a sheet of paper, and by means of a bone-spatula, mix with it the Chlorate of Potassium, being careful to avoid trituration and pressure, to prevent the mixture from igniting or exploding. Lastly, with water, form a mass, to be divided into *one hundred* (100) *troches.*

TROCHISCI SODII BICARBONATIS.

TROCHES OF BICARBONATE OF SODIUM.

	Grains.	Grammes.
Bicarbonate of Sodium, *three hundred grains*	300	19.50
Sugar, in fine powder, *nine hundred grains*	900	58.50
Nutmeg, in fine powder, *fifteen grains*	15	1.00
Mucilage of Tragacanth, *a sufficient quantity*,		
To make *one hundred troches*....	100	

Rub the Bicarbonate of Sodium with the powders until they are thoroughly mixed; then, with Mucilage of Tragacanth, form a mass, to be divided into *one hundred* (100) *troches.*

TROCHISCI SODII SANTONINATIS.

TROCHES OF SANTONINATE OF SODIUM.

	Grains.	Grammes.
Santoninate of Sodium, in fine powder, *one hundred grains*..............................	100	6.50
Sugar, in fine powder, *two thousand grains*..............	2000	130.00
Tragacanth, in fine powder, *fifty grains*................	50	3.25
Orange Flower Water, *a sufficient quantity*,		
To make *one hundred troches*....	100	

Rub the powders together until they are thoroughly mixed; then, with Orange Flower Water, form a mass, to be divided into *one hundred* (100) *troches.*

Troches of Santoninate of Sodium should be kept in dark amber-colored vials.

TROCHISCI ZINGIBERIS.

TROCHES OF GINGER.

	Grains.	Grammes.
Tincture of Ginger, *two hundred grains*................	200	13.00
Tragacanth, in fine powder, *fifty grains*................	50	3.25
Sugar, in fine powder, *two thousand grains*..............	2000	130.00
Syrup of Ginger, *a sufficient quantity*,		
To make *one hundred troches*....	100	

Mix the Tincture of Ginger with the Sugar, and, having exposed the mixture to the air until dry, reduce it to a fine powder; to this add the Tragacanth, and mix thoroughly. Lastly, with Syrup of Ginger, form a mass, to be divided into *one hundred* (100) *troches.*

ULMUS.

ELM.

[SLIPPERY ELM.]

The inner bark of *Ulmus fulva* Michaux (Nat. Ord., *Urticaceæ, Ulmeæ*).

In flat pieces, varying in length and width, about one-eighth of an inch (3 millimeters) thick, tough, pale brownish-white, the inner surface finely ridged; fracture fibrous and mealy; the transverse section delicately checkered; odor slight, peculiar; taste mucilaginous, insipid.

Preparation: Mucilago Ulmi.

UNGUENTUM.

OINTMENT.

Lard, *eighty parts*	80
Yellow Wax, *twenty parts*	20
To make *one hundred parts*	100

Melt the Wax and add the Lard gradually; then stir the mixture constantly until cool.

UNGUENTUM ACIDI CARBOLICI.

OINTMENT OF CARBOLIC ACID.

Carbolic Acid, *ten parts*	10
Ointment, *ninety parts*	90
To make *one hundred parts*	100

Mix them thoroughly.

UNGUENTUM ACIDI GALLICI.

OINTMENT OF GALLIC ACID.

Gallic Acid, *ten parts*	10
Benzoinated Lard, *ninety parts*	90
To make *one hundred parts*	100

Rub the Gallic Acid with the Benzoinated Lard, gradually added, until they are thoroughly mixed, avoiding the use of an iron spatula.

UNGUENTUM ACIDI TANNICI.

OINTMENT OF TANNIC ACID.

Tannic Acid, *ten parts*	10
Benzoinated Lard, *ninety parts*	90
To make *one hundred parts*	100

Rub the Tannic Acid with the Benzoinated Lard, gradually added, until they are thoroughly mixed, avoiding the use of an iron spatula.

UNGUENTUM AQUÆ ROSÆ.

OINTMENT OF ROSE WATER.

[COLD CREAM.]

Expressed Oil of Almond, *fifty parts*	50
Spermaceti, *ten parts*	10
White Wax, *ten parts*	10
Rose Water, *thirty parts*	30
To make *one hundred parts*	100

Melt together, at a moderate heat, the Oil, Spermaceti, and Wax; then gradually add the Rose Water, stirring the mixture briskly and constantly until it is cool, and continue the stirring until it has become uniformly soft and creamy.

UNGUENTUM BELLADONNÆ.

BELLADONNA OINTMENT.

Alcoholic Extract of Belladonna, *ten parts*	10
Diluted Alcohol, *six parts*	6
Benzoinated Lard, *eighty-four parts*	84
To make *one hundred parts*	100

Rub the Extract with the Diluted Alcohol, until uniformly soft, then gradually add the Lard, and mix thoroughly.

UNGUENTUM CHRYSAROBINI.

CHRYSAROBIN OINTMENT.

Chrysarobin, *ten parts*	10
Benzoinated Lard, *ninety parts*	90
To make *one hundred parts*	100

Rub the Chrysarobin with the Benzoinated Lard, gradually added, until they are thoroughly mixed.

UNGUENTUM DIACHYLON.

DIACHYLON OINTMENT.

Lead Plaster, *sixty parts*	60
Olive Oil, *thirty-nine parts*	39
Oil of Lavender, *one part*	1
To make *one hundred parts*	100

Melt together the Lead Plaster and Olive Oil, at a moderate heat; then, having permitted the mass to become partly cool, incorporate with it the Oil of Lavender, and stir constantly until cold.

UNGUENTUM GALLÆ.

NUTGALL OINTMENT.

Nutgall, in No. 80 powder, *ten parts*	10
Benzoinated Lard, *ninety parts*	90
To make *one hundred parts*	100

Rub the Nutgall with the Benzoinated Lard, gradually added, until they are thoroughly mixed.

UNGUENTUM HYDRARGYRI.

MERCURIAL OINTMENT.

[BLUE OINTMENT.]

Mercury, *four hundred and fifty parts*	450
Lard, *two hundred and twenty-five parts*	225
Suet, *two hundred and twenty-five parts*	225
Compound Tincture of Benzoin, *forty parts*	40
Mercurial Ointment, *one hundred parts*	100
To make *one thousand parts*	1000

Mix the Mercury with the Tincture of Benzoin in a mortar, add the Mercurial Ointment (which should contain 50 per cent. of mercury) and triturate the mixture until globules of Mercury cease to be visible; then add the Lard and Suet, previously melted together and partially cooled, and continue the trituration until globules of Mercury cease to be visible under a magnifying power of ten diameters.

UNGUENTUM HYDRARGYRI AMMONIATI.

OINTMENT OF AMMONIATED MERCURY.

Ammoniated Mercury, in very fine powder, *ten parts*	10
Benzoinated Lard, *ninety parts*	90
To make *one hundred parts*....	100

Rub the Ammoniated Mercury with the Benzoinated Lard, gradually added, until they are thoroughly mixed.

UNGUENTUM HYDRARGYRI NITRATIS.

OINTMENT OF NITRATE OF MERCURY.

[CITRINE OINTMENT.]

Mercury, *seven parts*	7
Nitric Acid, *seventeen parts*	17
Lard Oil, *seventy-six parts*	76

Heat the Lard Oil, in a glass or porcelain vessel, to a temperature of 70° C. (158° F.); then add, without stirring, *seven* (7) *parts* of Nitric Acid, continue the heat so long as a moderate effervescence continues, and allow the mixture to cool. Dissolve the Mercury in the remainder of the Nitric Acid, with the aid of sufficient heat to prevent the solution from crystallizing, add this solution to the mixture before it has become entirely cold, and mix them thoroughly, avoiding the use of an iron spatula.

UNGUENTUM HYDRARGYRI OXIDI FLAVI.

OINTMENT OF YELLOW OXIDE OF MERCURY.

Yellow Oxide of Mercury, in very fine powder, *ten parts*	10
Ointment, *ninety parts*	90
To make *one hundred parts*....	100

Rub the Oxide of Mercury with the Ointment, gradually added, until they are thoroughly mixed.

UNGUENTUM HYDRARGYRI OXIDI RUBRI.

OINTMENT OF RED OXIDE OF MERCURY.

Red Oxide of Mercury, in very fine powder, *ten parts*	10
Ointment, *ninety parts*	90
To make *one hundred parts*	100

Rub the Oxide of Mercury with a small quantity of the Ointment, until a perfectly smooth mixture is obtained; then gradually add the remainder of the Ointment, and mix thoroughly.

UNGUENTUM IODI.

IODINE OINTMENT.

[UNGUENTUM IODINII, *Pharm.*, 1870.]

Iodine, *four parts*	4
Iodide of Potassium, *one part*	1
Water, *two parts*	2
Benzoinated Lard, *ninety-three parts*	93
To make *one hundred parts*	100

Rub the Iodine and Iodide of Potassium, first with the Water and then with the Benzoinated Lard, gradually added, until they are thoroughly mixed, avoiding the use of an iron spatula.

UNGUENTUM IODOFORMI.

IODOFORM OINTMENT.

Iodoform, in very fine powder, *ten parts*	10
Benzoinated Lard, *ninety parts*	90
To make *one hundred parts*	100

Rub the Iodoform with the Benzoinated Lard, gradually added, until they are thoroughly mixed.

UNGUENTUM MEZEREI.

MEZEREUM OINTMENT.

Fluid Extract of Mezereum, *twenty-five parts*	25
Lard, *eighty parts*	80
Yellow Wax, *twelve parts*	12

Melt together the Lard and Wax with a moderate heat, add the Fluid Extract, and stir the mixture constantly until the alcohol has evaporated; then continue to stir until cool.

UNGUENTUM PICIS LIQUIDÆ.

TAR OINTMENT.

Tar, *fifty parts*	50
Suet, *fifty parts*	50
To make *one hundred parts*	100

Mix the Tar with the Suet, previously melted with a moderate heat, and, having strained the mixture through muslin, stir it constantly until cool.

UNGUENTUM PLUMBI CARBONATIS.

OINTMENT OF CARBONATE OF LEAD.

Carbonate of Lead, in very fine powder, *ten parts*	10
Benzoinated Lard, *ninety parts*	90
To make *one hundred parts*	100

Rub the Carbonate of Lead with the Benzoinated Lard, gradually added, until they are thoroughly mixed.

UNGUENTUM PLUMBI IODIDI.

OINTMENT OF IODIDE OF LEAD.

Iodide of Lead, in very fine powder, *ten parts*	10
Benzoinated Lard, *ninety parts*	90
To make *one hundred parts*	100

Rub the Iodide of Lead with the Benzoinated Lard, gradually added, until they are thoroughly mixed.

UNGUENTUM POTASSII IODIDI.

OINTMENT OF IODIDE OF POTASSIUM.

Iodide of Potassium, in fine powder, *twelve parts*	12
Hyposulphite of Sodium, *one part*	1
Boiling Water, *six parts*	6
Benzoinated Lard, *eighty-one parts*	81
To make *one hundred parts*	100

Dissolve the Iodide of Potassium and the Hyposulphite of Sodium in the Boiling Water, in a warm mortar; then gradually add the Benzoinated Lard, and mix thoroughly.

UNGUENTUM STRAMONII.

STRAMONIUM OINTMENT.

Extract of Stramonium, *ten parts*	10
Water, *five parts*	5
Benzoinated Lard, *eighty-five parts*	85
To make *one hundred parts*	100

Rub the Extract with the Water until uniformly soft; then gradually add the Benzoinated Lard, and mix thoroughly.

UNGUENTUM SULPHURIS.

SULPHUR OINTMENT.

Sublimed Sulphur, *thirty parts*	30
Benzoinated Lard, *seventy parts*	70
To make *one hundred parts*	100

Rub the Sulphur with the Benzoinated Lard, gradually added, until they are thoroughly mixed.

UNGUENTUM SULPHURIS ALKALINUM.

ALKALINE SULPHUR OINTMENT.

Washed Sulphur, *twenty parts*	20
Carbonate of Potassium, *ten parts*	10
Water, *five parts*	5
Benzoinated Lard, *sixty-five parts*	65
To make *one hundred parts*	100

Rub the Sulphur with the Carbonate of Potassium and the Water, gradually add the Benzoinated Lard, and mix thoroughly.

UNGUENTUM VERATRINÆ.

VERATRINE OINTMENT.

[UNGUENTUM VERATRIÆ, *Pharm.*, 1870.]

Veratrine, *four parts*	4
Alcohol, *six parts*	6
Benzoinated Lard, *ninety-six parts*	96

Rub the Veratrine with the Alcohol, in a warm mortar, until dissolved; then gradually add the Benzoinated Lard, and mix thoroughly.

UNGUENTUM ZINCI OXIDI.

OINTMENT OF OXIDE OF ZINC.

Oxide of Zinc, *twenty parts*	20
Benzoinated Lard, *eighty parts*	80
To make *one hundred parts*	100

Rub the Oxide of Zinc with *twenty* (20) *parts* of Benzoinated Lard, previously melted, until the mixture is perfectly smooth; then add the remainder of the Benzoinated Lard, and mix thoroughly.

USTILAGO.

USTILAGO.

[CORN SMUT.]

Ustilago Maydis Leveillé (Nat. Ord., *Fungi*), grown upon *Zea Mays* Linné (Nat. Ord., *Graminaceæ*).

Ustilago should be preserved in a dry place, and should not be kept longer than a year.

Irregular, globose masses, sometimes six inches (15 centimeters) thick, consisting of a blackish membrane, inclosing innumerable, brownish-black, globular and nodular spores; odor and taste unpleasant.

UVA URSI.

UVA URSI.

[BEARBERRY.]

The leaves of *Arctostaphylos Uva-ursi* Sprengel (Nat. Ord., *Ericaceæ*).

Nearly sessile, obovate or oblong-spatulate, about four-fifths of an inch (2 centimeters) long, obtuse, slightly revolute on the margin, smooth, glossy on the upper surface, paler and reticulate on the lower surface, of a faint, hay-like odor, and a strongly astringent, somewhat bitter taste.

Preparation: Extractum Uvæ Ursi Fluidum.

VALERIANA.

VALERIAN.

The rhizome and rootlets of *Valeriana officinalis* Linné (Nat. Ord., *Valerianaceæ*).

Rhizome from four-fifths of an inch to an inch and a half (2 to 4 centimeters) long, upright, subglobular or obconical, truncate at both ends, brown or yellowish-brown, internally whitish or pale brownish, with a narrow circle of white wood under the thin bark. Rootlets numerous, slender, brittle, brown, with a thick bark, and slender, ligneous cord. Odor peculiar, becoming stronger and unpleasant on keeping; taste camphoraceous and bitter.

Preparations: Abstractum Valerianæ. Extractum Valerianæ Fluidum. Tinctura Valerianæ. Tinctura Valerianæ Ammoniata.

VANILLA.

VANILLA.

The fruit of *Vanilla planifolia* Andrews (Nat. Ord., *Orchidaceæ*).

From six to ten inches (15 to 25 centimeters) long, linear, narrowed and bent or hooked at the base, rather oblique at the apex, wrinkled, somewhat warty, dark brown, glossy-leathery, one-celled, and containing a blackish-brown pulp, with numerous, minute seeds, and more or less acicular crystals; odor and taste peculiar, fragrant.

Preparation: Tinctura Vanillæ.

VERATRINA.

VERATRINE.

[VERATRIA, *Pharm.*, 1870.]

An alkaloid or mixture of alkaloids, prepared from the seeds of *Asagræa officinalis* Lindley (Nat. Ord., *Melanthaceæ*).

A white, or grayish-white, amorphous, rarely crystalline powder, permanent in the air, odorless, of a distinctive, acrid taste, leaving a sensation of tingling and numbness on the tongue, producing constriction of the fauces, and highly irritant to the nostrils. Veratrine is very slightly soluble in cold or hot water, but imparts to it an acrid taste and a feebly alkaline reaction. In boiling water it strongly cakes together without melting. It is soluble in 3 parts of alcohol at 15° C. (59° F.), and very soluble in boiling alcohol; also soluble in 6 parts of ether, in 2 parts of chloroform, in 96 parts of glycerin, and in 56 parts of olive oil. When heated, it melts; at higher temperatures it chars and is wholly dissipated.

With nitric acid, Veratrine forms a yellow solution, and, by contact with sulphuric acid, it first assumes a yellow color, which soon passes to reddish-yellow, then to an intense scarlet, and, after a while, to violet-red. On triturating Veratrine with sulphuric acid in a glass mortar, the yellow or yellowish-red solution exhibits, by reflected light, a strong, greenish-yellow fluorescence, which becomes more intense on adding more sulphuric acid. Heated with concentrated hydrochloric acid, it dissolves with a blood-red color.

Preparations: Oleatum Veratrinæ. Unguentum Veratrinæ.

VERATRUM VIRIDE.

VERATRUM VIRIDE.

[AMERICAN HELLEBORE.]

The rhizome and rootlets of *Veratrum viride* Aiton (Nat. Ord., *Melanthaceæ*).

Rhizome upright, obconical, simple or divided; externally blackish-gray, internally grayish-white; two to three inches (5 to 8 centimeters) long, one and one-half to two inches (4 to 5 centimeters) thick, with numerous, shrivelled, light yellowish-brown rootlets attached, which are four to six inches (10 to 15 centimeters) long, and about one-twelfth of an inch (2 millimeters) thick. Inodorous, but strongly sternutatory when powdered; taste bitterish and very acrid.

Preparations: Extractum Veratri Viridis Fluidum. Tinctura Veratri Viridis.

VIBURNUM.

VIBURNUM.

[BLACK HAW.]

The bark of *Viburnum prunifolium* Linné (Nat. Ord., *Caprifoliaceæ*).

In thin pieces or quills, glossy purplish-brown, with scattered warts, and minute, black dots; when collected from old wood, grayish-brown; the thin, corky layer easily removed from the green layer; inner surface whitish, smooth; fracture short; inodorous, somewhat astringent and bitter.

Preparation: Extractum Viburni Fluidum.

VINUM ALBUM.

WHITE WINE.

A pale amber-colored or straw-colored, alcoholic liquid, made by fermenting the unmodified juice of the grape, freed from seeds, stems, and skins.

White Wine should be preserved in well-closed, full casks or bottles, and in a cool place.

White Wine should have a full, fruity, agreeable taste, without excessive sweetness or acidity; and it should have a pleasant odor, free from yeastiness. Its sp. gr. at 15.6° C. (60° F.) should not be less than 0.990, nor more than 1.010. If 10 C.c of White Wine be diluted with an equal volume of distilled water and treated with 5 drops of test-solution of ferric chloride, only a faint, greenish-brown color should make its appearance (abs. of tannic acid). Upon evaporation and twelve hours' drying on the water-bath, it should leave a residue of not less than 1.5 per cent., nor more than 3.0 per cent. Using litmus paper as an indicator, 250 C.c. of White Wine should require, for complete neutralization, not less than 15, nor more than 26 C.c. of the volumetric solution of soda.

Tested by the following method, White Wine should contain not less than *ten* (10) *per cent.* nor more than *twelve* (12) *per cent.*, by weight, of absolute alcohol:

Weigh a definite volume of the Wine at the temperature of 15.6° C. (60° F.);

evaporate it in a porcelain capsule to one-third of its original volume, cool, and add distilled water until the mixture measures its original volume at the temperature of 15.6° C. (60° F.); then weigh again. The first weight divided by the second will afford a quotient (to be carried out to four decimal places) which corresponds to an alcohol, the percentage strength of which will be ascertained by inspecting the tables on pages 407–420.

Preparation: Vinum Album Fortius.

VINUM ALBUM FORTIUS.

STRONGER WHITE WINE.

White Wine, *seven parts*	7
Alcohol, *one part*	1

Mix them.

When tested for alcohol, as described under White Wine (see *Vinum Album*), Stronger White Wine should contain not less than *twenty* (20) *per cent.* nor more than *twenty-five* (25) *per cent.* of absolute alcohol, by weight.

VINUM ALOES.

WINE OF ALOES.

Purified Aloes, *six parts*	6
Cardamom, *one part*	1
Ginger, *one part*	1
Stronger White Wine, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the Aloes, Cardamom, and Ginger, and reduce them to a moderately coarse (No. 40) powder. Macerate the powder with *ninety* (90) *parts* of Stronger White Wine for seven days, with occasional agitation, and filter through paper, adding, through the filter, enough Stronger White Wine to make the filtered liquid weigh *one hundred* (100) *parts.*

VINUM ANTIMONII.

WINE OF ANTIMONY.

Tartrate of Antimony and Potassium, *four parts*	4
Boiling Distilled Water, *sixty parts*	60
Stronger White Wine, *a sufficient quantity,*	
To make *one thousand parts*	1000

Dissolve the Tartrate of Antimony and Potassium in the Water and, while the solution is hot, add *six hundred* (600) *parts* of Stronger White

Wine, and filter through paper, adding, through the filter, enough Stronger White Wine to make the filtered liquid weigh *one thousand* (1000) *parts.*

Preparation: Mistura Glycyrrhizæ Composita.

VINUM AROMATICUM.

AROMATIC WINE.

Lavender, *one part*	1
Origanum, *one part*	1
Peppermint, *one part*	1
Rosemary, *one part*	1
Sage, *one part*	1
Wormwood, *one part*	1
Stronger White Wine, *a sufficient quantity,*	
To make *one hundred parts*	100

Mix the solid ingredients, and reduce them to a coarse (No. 20) powder. Moisten the powder with *four* (4) *parts* of Stronger White Wine, pack it moderately in a conical glass percolator, and gradually pour enough Stronger White Wine upon it to make the filtered liquid weigh *one hundred* (100) *parts.*

VINUM COLCHICI RADICIS.

WINE OF COLCHICUM ROOT.

Colchicum Root, in No. 30 powder, *forty parts*	40
Stronger White Wine, *a sufficient quantity,*	
To make *one hundred parts*	100

Moisten the powder with *ten* (10) *parts* of Stronger White Wine, pack it moderately in a conical percolator, and gradually pour enough Stronger White Wine upon it to make the filtered liquid weigh *one hundred* (100) *parts.*

VINUM COLCHICI SEMINIS.

WINE OF COLCHICUM SEED.

Colchicum Seed, in No. 20 powder, *fifteen parts*	15
Stronger White Wine, *a sufficient quantity,*	
To make *one hundred parts*	100

To the powder add *ninety* (90) *parts* of Stronger White Wine, and macerate for seven days, with occasional agitation ; then filter through paper, adding, through the filter, enough Stronger White Wine to make the filtered liquid weigh *one hundred* (100) *parts.*

VINUM ERGOTÆ.

WINE OF ERGOT.

Ergot, recently ground and in No. 30 powder, *fifteen parts*	15
Stronger White Wine, *a sufficient quantity,*	
To make *one hundred parts*....	100

Moisten the powder with *four* (4) *parts* of Stronger White Wine, pack it moderately in a cylindrical percolator, and gradually pour enough Stronger White Wine upon it to make the filtered liquid weigh *one hundred* (100) *parts.*

VINUM FERRI AMARUM.

BITTER WINE OF IRON.

Solution of Citrate of Iron and Quinine, *eight parts*.........	8
Tincture of Sweet Orange Peel, *twelve parts*................	12
Syrup, *thirty-six parts*......................................	36
Stronger White Wine, *forty-four parts*.....................	44
To make *one hundred parts*....	100

Mix and filter through paper.

VINUM FERRI CITRATIS.

WINE OF CITRATE OF IRON.

Citrate of Iron and Ammonium, *four parts*.................	4
Tincture of Sweet Orange Peel, *twelve parts*...............	12
Syrup, *twelve parts*...	12
Stronger White Wine, *seventy-two parts*....................	72
To make *one hundred parts*....	100

Mix and filter through paper.

VINUM IPECACUANHÆ.

WINE OF IPECAC.

Fluid Extract of Ipecac, *seven parts*	7
Stronger White Wine, *ninety-three parts*	93
To make *one hundred parts*	100

Mix and filter through paper.

VINUM OPII.

WINE OF OPIUM.

Powdered Opium, *ten parts*	10
Cinnamon, in No. 60 powder, *one part*	1
Cloves, in No. 30 powder, *one part*	1
Stronger White Wine, *a sufficient quantity*,	
To make *one hundred parts*	100

To the mixed powders add *ninety* (90) *parts* of Stronger White Wine, and macerate the mixture for seven days, with occasional agitation; then transfer it to a filter, and gradually pour enough Stronger White Wine upon it to make the filtered liquid weigh *one hundred* (100) *parts*.

VINUM RHEI.

WINE OF RHUBARB.

Rhubarb, in No. 30 powder, *ten parts*	10
Calamus, in No. 30 powder, *one part*	1
Stronger White Wine, *a sufficient quantity*,	
To make *one hundred parts*	100

Moisten the mixed powders with *five* (5) *parts* of Stronger White Wine, pack the mixture in a conical glass percolator, and gradually pour enough Stronger White Wine upon it to make the filtered liquid weigh *one hundred* (100) *parts*.

VINUM RUBRUM.

RED WINE.

A deep red, alcoholic liquid, made by fermenting the juice of colored grapes in presence of their skins.

Red Wine should be preserved in well-closed, full casks or bottles, and in a cool place.

Red Wine should have a full, fruity, moderately astringent, pleasant taste, without decided sweetness or excessive acidity. It should have a pleasant odor, free from yeastiness. Its sp. gr. at 15.6° C. (60° F.) should not be less than 0.989, nor more than 1.010. If 10 C.c. of Red Wine be diluted with an equal volume of distilled water, and treated with 5 drops of test-solution of ferric chloride, the liquid should acquire a brownish-green color, due to tannic acid. Upon evaporation and twelve hours' drying on the water-bath, it should leave a residue of not less than 1.6 per cent., nor more than 3.5 per cent. Using litmus paper as an indicator, 250 C.c. of Red Wine should require, for complete neutralization, not less than 15, nor more than 26 C.c. of the volumetric solution of soda. If 50 C.c. of Red Wine be treated with a slight excess of water of ammonia, the liquid should acquire a green or brownish-green color; if it be then well shaken with 25 C.c. of ether, the greater portion of the ethereal layer removed and evaporated in a porcelain capsule with excess of acetic acid and a few fibres of uncolored silk, the latter should not acquire a crimson or violet color (abs. of aniline colors). With test-solution of acetate of lead, Red Wine should form a heavy precipitate, which may vary in color from bluish-green to green.

Tested by the following method, Red Wine should contain not less than *ten* (10) *per cent.*, nor more than *twelve* (12) *per cent.*, by weight, of absolute alcohol:

Weigh a definite volume of the Red Wine at the temperature of 15.6° C. (60° F.), evaporate it in a porcelain capsule to one-third of its original volume, cool, and add distilled water until the mixture measures its original volume at the temperature of 15.6° C. (60° F.); then weigh again. The first weight divided by the second will afford a quotient (to be carried out to four decimal places) which corresponds to an alcohol, the percentage strength of which will be ascertained by inspecting the tables on pages 407–420.

VIOLA TRICOLOR.

VIOLA TRICOLOR.

[PANSY.]

The wild-grown, flowering herb of *Viola tricolor* Linné (Nat. Ord., *Violaceæ*).

Stem angular and nearly smooth; leaves alternate, petiolate, ovate or oblong, crenate, with leaf-like, pinnatifid stipules; flowers with an obtuse spur, and the variegated petals shorter or longer than the calyx; inodorous; taste somewhat bitter and acrid.

VITELLUS.

YOLK OF EGG.

The yolk of the egg of *Gallus Bankiva* var. *domesticus* Temminck (Class, *Aves;* Order, *Gallinæ*).

Preparation: Glyceritum Vitelli.

XANTHOXYLUM.

XANTHOXYLUM.

[PRICKLY ASH.]

The bark of *Xanthoxylum fraxineum* Willdenow, and of *Xanthoxylum carolinianum* Lambert (Nat. Ord., *Rutaceæ, Xanthoxyleæ*).

Xanthoxylum fraxineum is in curved or quilled fragments, about one-twenty-fifth of an inch (1 millimeter) thick; outer surface brownish-gray, with whitish patches, and minute, black dots, faintly furrowed, with some brown, glossy, straight, two-edged spines, linear at the base, and about a quarter of an inch (6 millimeters) long; inner surface whitish, smooth; fracture short, non-fibrous, green in the outer, and yellowish in the inner layer; inodorous; bitterish, very pungent.

Xanthoxylum carolinianum resembles the preceding, but is about one-twelfth of an inch (2 millimeters) thick, and is marked by many conical, corky projections, sometimes four-fifths of an inch (2 centimeters) high, and by stout, brown spines, rising from a corky base.

Xanthoxylum should not be confounded with the bark of *Aralia spinosa* Linné, which is nearly smooth externally, and beset with slender prickles in transverse rows.

Preparation: Extractum Xanthoxyli Fluidum.

ZINCI ACETAS.

ACETATE OF ZINC.

$Zn(C_2H_3O_2)_2.3H_2O$; 236.9. — $ZnO,C_4H_3O_3.3HO$; 118.45.

Acetate of Zinc should be kept in well-stopped bottles.

Soft, white, micaceous or pearly, six-sided tablets or scales, somewhat efflorescent in dry air, having a faintly acetous odor, a sharp, metallic taste, and a slightly acid reaction. Soluble in 3 parts of water, and in 30 parts of alcohol at 15° C. (59° F.); in 1.5 part of boiling water, and in 3 parts of boiling alcohol. When strongly heated, the salt melts, and, at a higher temperature, it is decomposed with evolution of acetous vapors, a residue of oxide of zinc being finally left. The aqueous solution of the salt yields a white precipitate with test-solution of ferrocyanide of potassium or of sulphide of ammonium. On heating the salt with sulphuric acid, acetous vapors are evolved.

The aqueous solution, acidulated with hydrochloric acid, should yield no dark-colored precipitate with hydrosulphuric acid (abs. of lead, copper). On adding test-solution of carbonate of ammonium to the aqueous solution, a white precipitate is produced which should be wholly soluble in an excess of the reagent (abs. of iron, aluminium, and most of the alkaline earths). On completely precipitating the zinc from this alkaline solution by sulphide of ammonium, the filtrate should leave no fixed residue on evaporation and gentle ignition (salts of alkalies or of alkaline earths).

ZINCI BROMIDUM.

BROMIDE OF ZINC.

$ZnBr_2$; 224.5. — $ZnBr$; 112.25.

Bromide of Zinc should be kept in small, glass-stoppered vials.

A white, or nearly white, granular powder, very deliquescent, odorless, having a sharp, saline and metallic taste, and a neutral reaction. Very soluble in water and in alcohol. When strongly heated, it fuses, and, at a higher temperature, it is volatilized with partial decomposition. The aqueous solution of the salt yields a white precipitate with test-solution of ferrocyanide of potassium or of sulphide of ammonium. On adding some disulphide of carbon to the aqueous solution, then chlorine water, drop by drop, and agitating, the disulphide will separate with a yellow to brownish-red color, free from violet tint.

When acidulated with hydrochloric acid, the aqueous solution should yield no dark-colored precipitate with hydrosulphuric acid (abs. of lead, copper). On adding test-solution of carbonate of ammonium to the aqueous solution, a white precipitate is produced which should be wholly soluble in an excess of the reagent (abs. of iron, aluminium, and most of the alkaline earths). On completely precipitating the zinc from this alkaline solution by sulphide of ammonium, the filtrate should leave no fixed residue on evaporation and gentle ignition (salts of alkalies or of alkaline earths).

1 Gm. of the dry salt, when completely precipitated by nitrate of silver, yields 1.67 Gm. of dry bromide of silver.

ZINCI CARBONAS PRÆCIPITATUS.

PRECIPITATED CARBONATE OF ZINC.

$(ZnCO_3)_2.3Zn(HO)_2$; 546.5. — $2(ZnO,CO_2).3ZnO,HO$; 273.25.

[ZINCI CARBONAS PRÆCIPITATA, *Pharm.*, 1870.]

A white, impalpable powder, permanent in the air, odorless and tasteless, insoluble in water or alcohol, but soluble in acids with copious effervescence. When strongly heated, the salt loses water and carbonic acid gas, and leaves a residue of oxide of zinc. On dissolving the salt to saturation in diluted sulphuric acid, a portion of the filtrate, when mixed with test-solution of ferrocyanide of potassium or of sulphide of ammonium, yields a white precipitate. Another portion of this filtrate, acidulated with hydrochloric acid, should not yield a dark-colored precipitate with hydrosulphuric acid (abs. of lead, copper). Another portion, mixed with test-solution of carbonate of ammonium, yields a white precipitate which should be wholly soluble in an excess of the reagent (abs. of iron, aluminium, and most of the alkaline earths). On completely precipitating the zinc from this alkaline solution by sulphide of ammonium, the filtrate should not leave more than a trifling, fixed residue on evaporation and gentle ignition (limit of salts of alkalies or of alkaline earths).

ZINCI CHLORIDUM.

CHLORIDE OF ZINC.

$ZnCl_2$; 135.7. — $ZnCl$; 67.85.

Chloride of Zinc should be kept in small, glass-stoppered vials.

A white, crystalline powder, or white, opaque pieces, very deliquescent, odorless, having a very caustic, saline, and metallic taste, and an acid reaction. The salt is very soluble in water and in alcohol, forming a clear or only faintly opalescent liquid. This opalescence is removed by the addition of a few drops of hydrochloric acid. When heated to about 115° C. (239° F.), the salt melts, yielding a clear liquid, which, on cooling, congeals to a white or grayish-white solid. At a higher temperature it is partially volatilized and decomposed. The aqueous solution yields a white precipitate with test-solution of ferrocyanide of potassium, or of sulphide of ammonium, or of nitrate of silver.

The aqueous solution of the salt should be miscible with alcohol without precipitation (abs. of basic salt). When acidulated with hydrochloric acid, it should yield no dark-colored precipitate with hydrosulphuric acid (abs. of lead, copper). On adding test-solution of carbonate of ammonium to the aqueous solution, a white precipitate is produced which should be wholly soluble in an excess of the reagent (abs. of iron, aluminium, and most of the alkaline earths). On completely precipitating the zinc from this alkaline solution by sulphide of ammonium, the filtrate should leave no fixed residue on evaporation and gentle ignition (salts of alkalies or of alkaline earths).

ZINCI IODIDUM.

IODIDE OF ZINC.

ZnI_2; 318.1. — ZnI; 159.05.

Iodide of Zinc should be kept in small, glass-stoppered vials.

A white, or nearly white, granular powder, very deliquescent, odorless, having a sharp, saline, and metallic taste, and an acid reaction. Very soluble in water and in alcohol. When strongly heated, it melts, and, at a higher temperature, it is volatilized with partial decomposition. The aqueous solution yields a white precipitate with test-solution of ferrocyanide of potassium or of sulphide of ammonium, a yellow precipitate with test-solution of acetate of lead, and a red one with test-solution of mercuric chloride.

The aqueous solution of the salt, when acidulated with hydrochloric acid, should yield no dark-colored precipitate with hydrosulphuric acid (abs. of lead, copper). On adding test-solution of carbonate of ammonium to the aqueous solution, a white precipitate is produced which should be wholly soluble in an excess of the reagent (abs of iron, aluminium, and most of the alkaline earths). On completely precipitating the zinc from this alkaline solution by sulphide of ammonium, the filtrate should leave no fixed residue on evaporation and gentle ignition (salts of alkalies or of alkaline earths).

1 Gm. of the dry salt, when completely precipitated with nitrate of silver, yields 1.47 Gm. of dry iodide of silver.

ZINCI OXIDUM.

OXIDE OF ZINC.

ZnO; 80.9. — ZnO; 40.45.

A soft, pale yellowish, nearly white powder, permanent in the air, odorless and tasteless, insoluble in water or alcohol, but soluble in acids without effervescence (abs. of carbonate). When strongly heated, the Oxide assumes a deep lemon-yellow color, but turns nearly white again on cooling. On dissolving the Oxide, to saturation, in diluted sulphuric acid and filtering, a portion of the filtrate, when mixed with test-solution of ferrocyanide of potassium or sulphide of ammonium, yields a white precipitate. Another portion of this filtrate, acidulated with hydrochloric acid, should yield no dark-colored precipitate with hydrosulphuric acid (abs. of lead, copper). Another portion, mixed with test-solution of carbonate of ammonium, yields a white precipitate which should be wholly soluble in an excess of the reagent (abs. of iron, aluminium, and most of the alkaline earths). On completely precipitating the zinc from this alkaline solution by sulphide of ammonium, the filtrate should not leave more than a trifling, fixed residue on evaporation (limit of salts of alkalies or of alkaline earths).

Preparation: Unguentum Zinci Oxidi.

ZINCI PHOSPHIDUM.

PHOSPHIDE OF ZINC.

Zn_3P_2; 256.7. — Zn_3P; 128.35.

Phosphide of Zinc should be kept in small, glass-stoppered vials.

Minutely crystalline, friable fragments, having a metallic lustre on the fractured surfaces, or a grayish-black powder, permanent in the air, having a faint odor and taste of phosphorus, insoluble in water or alcohol, but completely soluble in hydrochloric or sulphuric acids with evolution of phosphoretted hydrogen. When strongly heated, with exclusion of air, the salt melts and is completely volatilized. If heated for some time in the air, it is partially converted into phosphate of zinc. On dissolving the salt, to saturation, in diluted sulphuric acid, and driving off the phosphoretted hydrogen by heat, a portion of the cold filtrate, when mixed with test-solution of ferrocyanide of potassium or of sulphide of ammonium, yields a white precipitate. Another portion of the filtrate, acidulated with hydrochloric acid, should not yield a dark-colored precipitate with hydrosulphuric acid (abs. of lead, copper).

ZINCI SULPHAS.

SULPHATE OF ZINC.

$ZnSO_4.7H_2O$; 286.9. — $ZnO,SO_3.7HO$; 143.45.

Sulphate of Zinc should be kept in well-stopped bottles.

Small, colorless, right rhombic prisms, or acicular needles, slowly efflorescing in dry air, odorless, having a sharp, saline, nauseous and metallic taste, and an acid reaction. Soluble in 0.6 part of water at 15° C. (59° F.), and in 0.3 part of boiling water; insoluble in alcohol. When strongly heated, the salt melts, gradually loses water, and, at a higher temperature, it is decomposed with evolution of sulphurous vapors. The aqueous solution of the salt yields a white precipitate with test-solution of ferrocyanide of potassium, or of sulphide of ammonium, or of chloride of barium.

A one per cent. aqueous solution of the salt, acidulated with nitric acid, should not be rendered turbid by test-solution of nitrate of silver (abs. of chloride). The aqueous solution, acidulated with hydrochloric acid, should yield no dark-colored precipitate with hydrosulphuric acid (abs. of lead, copper). On adding test-solution of carbonate of ammonium to an aqueous solution of the salt, a white precipitate is produced which should be wholly soluble in an excess of the reagent (abs. of iron, aluminium, and most of the alkaline earths). On completely precipitating the zinc from this alkaline solution by sulphide of ammonium, the filtrate should leave no fixed residue on evaporation and gentle ignition (salts of alkalies or of alkaline earths).

ZINCI VALERIANAS.

VALERIANATE OF ZINC.

$Zn(C_5H_9O_2)_2.H_2O$; 284.9. — $ZnO,C_{10}H_9O_3.HO$; 142.45.

Valerianate of Zinc should be kept in small, well-stopped vials.

Soft, white, pearly scales, permanent in the air, having a faint odor of valerianic acid, a sweet, afterward styptic and metallic taste, and an acid reaction. Soluble in 100 parts of water, and in 40 parts of alcohol at 15° C. (59° F.), both solutions becoming turbid on boiling. When heated, the salt melts; at a higher temperature it gives off white, inflammable vapors, and finally leaves a residue of oxide of zinc. The salt is completely dissolved by an excess of water of ammonia, and, on adding test-solution of sulphide of ammonium to this solution, a white precipitate is produced. The filtrate should leave no residue on evaporation (abs. of salts of alkalies and alkaline earths).

On mixing a cold, concentrated solution of the salt and a similar one of acetate of copper, no turbidity or precipitate should be produced in the mixture (abs. of butyrate). On moistening 1 Gm. of the salt with nitric acid, evaporating to dryness, again moistening with nitric acid, drying and igniting, a residue will be left which should weigh 0.283 Gm.

ZINCUM.

ZINC.

Zn ; 64.9. — *Zn ;* 32.45.

Metallic Zinc, in the form of thin sheets, or irregular, granulated pieces.

A bluish-white metal, having the sp. gr. 6.9. When treated with warm, diluted sulphuric acid, it is almost completely dissolved, forming a colorless liquid which yields a white precipitate with test-solution of ferrocyanide of potassium or of sulphide of ammonium. If the gas which is given off during the solution be made to come in contact with paper wet with test-solution of nitrate of silver, no brown or black stain should be produced on the paper (abs. of arsenic). On adding water of ammonia to a colorless solution of the metal in diluted sulphuric acid, a white precipitate is produced which should be soluble in an excess of water of ammonia, yielding a colorless liquid (abs. of more than traces of lead, iron, and copper).

ZINGIBER.

GINGER.

The rhizome of *Zingiber officinale* Roscoe (Nat. Ord., *Zingiberaceæ*).

About three-fifths of an inch (15 millimeters) broad, flattish, on one side lobed or clavately branched; deprived of the corky layer; pale buff-colored, striate, breaking with a mealy, rather fibrous fracture, showing numerous, small, scattered resin-cells and fibro-vascular bundles, the latter enclosed by a nucleus sheath; agreeably aromatic, and of a pungent and warm taste.

Preparations: Extractum Zingiberis Fluidum. Oleoresina Zingiberis. Pulvis Aromaticus. Tinctura Zingiberis.

LIST OF REAGENTS AND TABLES

LIST OF REAGENTS.

I. ARTICLES USED IN TESTING.

Absolute Alcohol.—Ethyl Alcohol [C_2H_5HO ; 46] nearly or quite free from water. It should have the specific gravity 0.794 at 15.6° (60° F.); should respond to the tests of purity given under Alcohol; and a portion shaken with well-dried sulphate of copper should not impart color to the latter.

Acids.—All acids used in testing must fulfill the requrements of strength and purity mentioned in the Pharmacopœia, with the additional condition, that the reactions for purity shall not depend upon a limit of time, nor permit any recognizable trace of impurity.

Besides responding to all other tests for purity, *Hydrochloric Acid*, diluted with five times its volume of distilled water, and *Sulphuric Acid*, diluted with fifteen times its volume of distilled water, when treated by the method given under Test-Zinc, should give no indication of the presence of arsenic.

Aluminium.—Metallic Aluminium [Al ; 27] in the form of wire or ribbon. It should be soluble in solution of potassa, without leaving a residue.

Chromate of Potassium.—The crystallized salt [K_2CrO_4 ; 194.4].

Copper.—Metallic Copper [Cu ; 63.2] in slender wire, or thin foil cut into strips.

Gelatinised Starch.—A gelatinous solution, freshly prepared by mixing *one* (1) *part* of Starch (see *Amylum*) with *two hundred* (200) *parts* of Distilled Water, and boiling the mixture for five or six minutes.

Gold.—Metallic Gold [Au ; 196.2] in the form of leaf. It should not be affected by nitric acid, but should readily dissolve, without residue, in nitrohydrochloric acid.

Hydrosulphuric Acid.—The gas [H_2S; 34] generated by treating Ferrous Sulphide [FeS; 87.9] with Diluted Sulphuric Acid (see *Acidum Sulphuricum Dilutum*), and washed by being passed through a small quantity of Distilled Water, in a wash-bottle. *One* (1) *part* of ferrous sulphide is sufficient for *fifteen* (15) *parts* of diluted sulphuric acid, or for *one and one-half* (1.5) *parts* of sulphuric acid when this is diluted with *eight* to *ten times* its weight of distilled water; and the resulting gas will saturate about *fifty* (50) *parts* of distilled water. Distilled water so saturated may be used, when fresh, as a test-solution of Hydrosulphuric Acid. It should give the strong odor of the acid, and should abundantly blacken test-solution of acetate of lead.

Indigo.—Indigo Blue [C_8H_5NO; 131].

Litmus Paper.—*Blue Litmus Paper.* Unsized White Paper colored with Solution of Litmus.—*Red Litmus Paper.* Unsized White Paper colored with Solution of Litmus previously reddened by the smallest requisite quantity of Sulphuric Acid.

Molybdate of Sodium.—The salt [$Na_2MoO_4.H_2O$; 223.5] in crystals, or in clear, white, fused masses.

Solution of Litmus.—A solution prepared by macerating *one* (1) *part* of Litmus, in powder, with *ten* (10) *parts* of Diluted Alcohol, in a closed vessel, for two days, and filtering.

Solution of Turmeric.—A solution prepared by macerating *one* (1) *part* of bruised Turmeric, with *six* (6) *parts* of Diluted Alcohol, in a closed vessel, for seven days, and filtering.

Turmeric Paper.—Unsized White Paper colored with Solution of Turmeric, by steeping and drying it without the application of heat.

Test-Zinc.—Metallic Zinc [Zn; 64.9], free from arsenic, and in slender sticks, or small fragments, or in thin disks, prepared by melting the metal and pouring it in a thin stream into water.

Test-Zinc should be soluble in diluted sulphuric acid and leave no residue or not more than a slight one (absence of more than small proportions of lead). If Test-Zinc does not cause rapid effervescence in diluted sulphuric acid, this difficulty may be overcome by sprinkling the metal with test-solution of platinic chloride previously diluted with about five hundred times its volume of distilled water, and then drying on the water-bath.

Test for the Absence of Arsenic.

A flask of 300 to 400 C.c. capacity is connected, through a tubulated stopper, with a drying-tube, one end of which is filled with fragments of dried chloride of calcium, and the other end with fragments of dry potassa or soda. The drying-tube is connected with a horizontal tube of hard glass, about ten inches (25 centimeters) in length and one-fourth of an inch (6 millimeters) in diameter, having the farther end drawn out narrow and turned downward, so as nearly to reach the bottom of a test-tube adjusted to receive it. Near its further horizontal portion, the hard glass tube is narrowed to about one-third its diameter, and the whole tube is supported securely, leaving a space of three inches (7 centimeters), next before the narrowed portion, free for the flame of a lamp placed underneath. A portion of 4 to 5 Gm. of the Zinc to be tested is placed in the flask, with 120 to 150 C.c. of diluted sulphuric acid (known to be free from arsenic), the connections are closed, and 3 or 4 C.c. of test-solution of nitrate of silver poured in the test-tube to receive the gas. When the gas has bubbled briskly through the solution in the test-tube for at least five minutes, and until the air is expelled from the apparatus, the lamp is placed so as to heat the hard glass tube nearly or quite to redness, and this temperature is maintained for at least twenty minutes, while the gas is passing. No mirror should appear in the narrowed portion of the heated tube, beyond the flame, and no black precipitate, or not more than a slight darkening of color should appear in the test-solution of nitrate of silver (abs. of arsenic). Also no mirror should appear in the tube next before its heated portion (abs. of antimony).

Water.—Whenever Water is mentioned in the descriptions of chemicals, or for use in any test, Distilled Water is to be employed.

II. TEST-SOLUTIONS.

[Test-Solutions should be preserved in well-stopped bottles of hard glass.]

Test-Solution of Acetate of Lead.—A solution of *one* (1) *part* of Acetate of Lead (see *Plumbi Acetas*) in *ten* (10) *parts* of Distilled Water, with the addition of a few drops of Acetic Acid (see *Acidum Aceticum*), if necessary, to give the liquid a faint acid reaction. The solution should be clear.

Test-Solution of Albumen.—A solution, recently prepared by triturating the White of one Egg with *one hundred* (100) *cubic centimeters* of Distilled Water and filtering through cotton moistened with distilled water.

Test-Solution of Ammonio-Nitrate of Silver.—A solution prepared by adding Water of Ammonia (see *Aqua Ammoniæ*), in drops, to Test-Solution of Nitrate of Silver, until the precipitate at first formed is very nearly all dissolved, and filtering.

Test-Solution of Ammonio-Sulphate of Copper.—A solution prepared by adding Water of Ammonia (see *Aqua Ammoniæ*), in drops, to Test-Solution of Sulphate of Copper, until the precipitate at first formed is very nearly all dissolved, and filtering.

Test-Solution of Bichromate of Potassium.—A clear solution prepared by dissolving *one* (1) *part* of Bichromate of Potassium (see *Potassii Bichromas*) in *ten* (10) *parts* of Distilled Water.

Test-Solution of Bitartrate of Sodium.—A clear solution prepared by dissolving *one* (1) *part* of pure Bitartrate of Sodium [$NaHC_4H_4O_6.H_2O$; 190] in *ten* (10) *parts* of Distilled Water, with the aid of heat, and filtering when cold.

Test-Solution of Carbonate of Ammonium.—A clear solution prepared by dissolving *one* (1) *part* of Carbonate of Ammonium (see *Ammonii Carbonas*) in *ten* (10) *parts* of Distilled Water.

Test-Solution of Carbonate of Sodium.—A clear solution prepared by dissolving *one* (1) *part* of Carbonate of Sodium (see *Sodii Carbonas*) in *ten* (10) *parts* of Distilled Water.

Test-Solution of Chloride of Ammonium.—A clear solution prepared by dissolving *one* (1) *part* of Chloride of Ammonium (see *Ammonii Chloridum*) in *ten* (10) *parts* of Distilled Water.

Test-Solution of Chloride of Barium.—A clear solution prepared by dissolving *one* (1) *part* of pure, crystallized Chloride of Barium [$BaCl_2.2H_2O$; 243.6], in *ten* (10) *parts* of Distilled Water.

Test-Solution of Chloride of Calcium.—A clear solution prepared by dissolving *one* (1) *part* of pure, crystallized Chloride of Calcium [$CaCl_2.6H_2O$; 218.8] in *ten* (10) *parts* of Distilled Water.

Test-Solution of Chloride of Gold.—A clear solution prepared by dissolving *one* (1) *part* of Chloride of Gold [$AuCl_3$; 302.4] in *twenty* (20) *parts* of Distilled Water.

Test-Solution of Chromate of Potassium.—A clear solution prepared by dissolving *one* (1) *part* of pure Chromate of Potassium [K_2CrO_4; 194.4] in *ten* (10) *parts* of Distilled Water.

Test-Solution of Ferric Chloride.—A clear solution prepared by dissolving *one* (1) *part* of Ferric Chloride (see *Ferri Chloridum*) in *ten* (10) *parts* of distilled water.

Test-Solution of Ferricyanide of Potassium.—A recently prepared and perfectly clear solution, made by dissolving *one* (1) *part* of pure Ferricyanide of Potassium [$K_3Fe(CN)_6$; 328.9] in *ten* (10) *parts* of Distilled Water. A portion of the solution, diluted with ten times its volume of distilled water, should give no blue precipitate on the addition of a few drops of test-solution of ferric chloride.

Test-Solution of Ferrocyanide of Potassium.—A clear solution prepared by dissolving *one* (1) *part* of Ferrocyanide of Potassium (see *Potassii Ferrocyanidum*) in *ten* (10) *parts* of Distilled Water.

Test-Solution of Ferrous Sulphate.—A recently prepared solution made by dissolving *one* (1) *part* of selected, clear crystals of Ferrous Sulphate (see *Ferri Sulphas*) in *ten* (10) *parts* of Distilled Water. A portion of the solution, diluted with ten times its volume of distilled water, should give an abundant, blue precipitate on the addition of a few drops of test-solution of ferricyanide of potassium.

Test-Solution of Gelatin.—A solution recently prepared by digesting *one* (1) *part* of Isinglass (see *Ichthyocolla*) in *fifty* (50) *parts* of Distilled Water, on a water-bath, for half an hour, and, if necessary, filtering through cotton moistened with distilled water.

Test-Solution of Hydrosulphuric Acid.—A solution of Hydrosulphuric Acid gas in Distilled Water, as described under Hydrosulphuric Acid (see page 388).

Test-Solution of Hyposulphite of Sodium.—A clear solution prepared by dissolving *one* (1) *part* of Hyposulphite of Sodium (see *Sodii Hyposulphis*) in *ten* (10) *parts* of Distilled Water.

Test-Solution of Indigo.—A liquid prepared by digesting *one* (1) *part* of Indigo, in powder, with *twelve* (12) *parts* of Sulphuric Acid, on a water-bath, for one hour, pouring the solution into *five hundred* (500) *parts* of Sulphuric Acid, then leaving the mixture to subside, and decanting the clear portion for use.

Test-Solution of Iodide of Mercury and Potassium.—A clear solution prepared by adding *one hundred* (100) *parts* of Test-Solution of Mercuric Chloride to *three hundred and sixty-seven* (367) *parts* of Test-Solution of Iodide of Potassium.

Test-Solution of Iodide of Potassium.—A clear, colorless solution prepared by dissolving *one* (1) *part* of Iodide of Potassium (see *Potassii Iodidum*) in *twenty* (20) *parts* of Distilled Water. The solution should have a neutral reaction.

Test-Solution of Iodine.—A dark-colored, clear solution prepared by dissolving *one* (1) *part* of Iodine (see *Iodum*) in a solution of *three* (3) *parts* of Iodide of Potassium in *fifty* (50) *parts* of Distilled Water.

Test-Solution of Magnesium.—A clear solution prepared by dissolving *one* (1) *part* of Sulphate of Magnesium (see *Magnesii Sulphas*), and *two* (2) *parts* of Chloride of Ammonium (see *Ammonii Chloridum*), in *eight* (8) *parts* of Distilled Water, then adding *four* (4) *parts* of Water of Ammonia (see *Aqua Ammoniæ*), setting aside for two or three days, and filtering.

Test-Solution of Mercuric Chloride.—A clear solution prepared by dissolving *one* (1) *part* of Mercuric Chloride (see *Hydrargyri Chloridum Corrosivum*) in *twenty* (20) *parts* of Distilled Water.

Test-Solution of Nitrate of Barium.—A clear solution prepared by dissolving *one* (1) *part* of pure Nitrate of Barium [$Ba(NO_3)_2$; 260.8] in *twenty* (20) *parts* of Distilled Water.

Test-Solution of Nitrate of Silver.—A clear solution prepared by dissolving *one* (1) *part* of crystallized Nitrate of Silver (see *Argenti Nitras*) in *twenty* (20) *parts* of Distilled Water.

Test-Solution of Oxalate of Ammonium.—A clear solution prepared by dissolving *one* (1) *part* of pure Oxalate of Ammonium [$(NH_4)_2C_2O_4.H_2O$; 142] in *twenty* (20) *parts* of Distilled Water.

Test-Solution of Permanganate of Potassium.—A solution recently prepared by dissolving *one* (1) *part* of Permanganate of Potassium (see *Potassii Permanganas*) in *one thousand* (1000) *parts* of Distilled Water. 62.8 C.c. of this solution, acidified with 5 C.c. of diluted sulphuric acid, should require 2 C.c. of the volumetric solution of oxalic acid for complete decoloration.

Test-Solution of Phosphate of Ammonium.—A clear solution prepared by dissolving *one* (1) *part* of Phosphate of Ammonium (see *Ammonii Phosphas*) in *ten* (10) *parts* of Distilled Water.

Test-Solution of Phosphate of Sodium.—A clear solution prepared by dissolving *one* (1) *part* of Phosphate of Sodium (see *Sodii Phosphas*) in *ten* (10) *parts* of Distilled Water.

Test-Solution of Picric Acid.—A saturated, aqueous solution prepared by dissolving *one* (1) *part* of well-crystallized Picric Acid [$HC_6H_2(No_2)_3O$; 229] in *one hundred* (100) *parts* of Distilled Water, by the aid of heat, setting aside to cool, and filtering after twelve hours.

Test-Solution of Platinic Chloride.—A clear solution prepared by dissolving *one* (1) *part* of pure Platinic Chloride [$PtCl_4.5H_2O$; 426] in *twenty* (20) *parts* of Distilled Water.

Test-Solution of Potassio-Cupric Tartrate.—A solution prepared by dissolving *six and ninety-three hundredths* (6.93) *grammes* of selected crystals of Sulphate of Copper (see *Cupri Sulphas*) in *twenty* (20) *cubic centimeters* of Distilled Water; also dissolving *thirty-six* (36) *grammes* of Tartrate of Potassium (see *Potassii Tartras*) in *one hundred and forty* (140) *cubic centimeters* of Solution of Soda (see *Liquor Sodæ*) ; then adding the former solution gradually to the latter, while stirring, and finally adding to the mixture a sufficient quantity of Solution of Soda to make the liquid measure *two hundred* (200) *cubic centimeters.*

Test-Solution of Potassio-Cupric Tartrate should be free from yellowish-brown sediment, and should deposit none upon boiling.

Test-Solution of Sulphate of Calcium.—A saturated solution prepared by digesting *one* (1) *part* of powdered, native, crystallized Sulphate of Calcium [$CaSO_4.2H_2O$; 172] with about *three hundred* (300) *parts* of Distilled Water, at the ordinary temperature, with repeated agitation, for several days, and decanting the clear liquid.

Test-Solution of Sulphate of Copper.—A solution prepared by dissolving *one* (1) *part* of selected crystals of Sulphate of Copper (see *Cupri Sulphas*) in *ten* (10) *parts* of Distilled Water.

Test-Solution of Sulphate of Potassium.—A solution prepared by dissolving *one* (1) *part* of Sulphate of Potassium (see *Potassii Sulphas*) in *fifteen* (15) *parts* of Distilled Water.

Test-Solution of Sulphate of Silver.—A solution prepared by dissolving *one* (1) *part* of Sulphate of Silver [Ag_2SO_4 ; 311.4] in *two hundred and fifty* (250) *parts* of Distilled Water, with the aid of a gentle heat.

Test-Solution of Sulphide of Ammonium.—An aqueous solution, chiefly of Ammonium Sulphide [$(NH_4)_2S$; 68] prepared by passing washed Hydrosulphuric Acid gas into *three* (3) *parts* of Water of Ammonia (see *Aqua Ammoniæ*) until the latter is saturated with the gas, and then adding *two* (2) *parts* of Water of Ammonia. The solution should not be rendered turbid by the addition of test-solution of sulphate of magnesium, or of test-solution of chloride of calcium (absence of ammonium hydrate, or carbonate).

Test-Solution of Tannic Acid.—A clear solution prepared by dissolving *one* (1) *part* of Tannic Acid (see *Acidum Tannicum*) in *nine* (9) *parts* of Distilled Water, and adding *one* (1) *part* of Alcohol. When this solution becomes turbid it should be rejected.

Test-Solution of Tartaric Acid.—A recently prepared and clear solution made by dissolving *one* (1) *part* of Tartaric Acid (see *Acidum Tartaricum*) in *five* (5) *parts* of Distilled Water.

III. VOLUMETRIC SOLUTIONS.

Volumetric Solution of Bichromate of Potassium.

$K_2Cr_2O_7$; 294.8. 14.74 Grammes in 1 Liter.

Bichromate of Potassium, *fourteen and seventy-four hundredths grammes*	14.74
Distilled Water, *a sufficient quantity,*	
To make *one thousand cubic centimeters*	1000

Dissolve the Bichromate of Potassium in about *seven hundred* (700) *cubic centimeters* of Distilled Water, and then add of the latter enough to make the solution measure *one thousand* (1000) *cubic centimeters*.

Note.—In the estimation of iron, in ferrous combinations, the aqueous solution of the salt is acidified with diluted sulphuric acid, and afterward the Volumetric Solution of Bichromate of Potassium gradually added, from a burette, until a drop taken out upon a white surface no longer shows a blue color with a drop of test-solution of ferricyanide of potassium.

One cubic centimeter is the equivalent of:

	Gramme.
Potassium Bichromate, $K_2Cr_2O_7$	0.01474
Iron in ferrous combination, Fe	0.01677
Ferrous Carbonate, $FeCO_3$	0.03477
Ferrous Sulphate, crystallized, $FeSO_4.7H_2O$	0.08337
Ferrous Sulphate, dried, $FeSO_4.H_2O$	0.05097

The following-named articles are tested with this solution:

	Gm. taken.	C.c. required.	Per cent. of strength indicated.
Ferri Carbonas Saccharatus	8.00	33	15, of ferrous carbonate.
Ferri Sulphas	4.167	*n*	2*n*, of crystallized ferrous sulphate.
Ferri Sulphas Præcipitatus	4.167	*n*	2*n*, of crystallized ferrous sulphate.

2. Volumetric Solution of Hyposulphite of Sodium.

$Na_2S_2O_3.5H_2O$; 248. 24.8 Grammes in 1 Liter.

Hyposulphite of Sodium, *thirty-two grammes*	32
Volumetric Solution of Iodine, *one hundred cubic centimeters*	100
Distilled Water, *a sufficient quantity,*	
To make *one thousand cubic centimeters*	1000

Dissolve the Hyposulphite of Sodium in enough Distilled Water to make the solution measure *one thousand* (1000) *cubic centimeters*. To the Volumetric Solution of Iodine (which should measure exactly *one hundred* (100) *cubic centimeters*) add a sufficient quantity of the Solution of Hyposulphite of Sodium, from a burette, nearly to decolorize the Iodine solution, then add freshly Gelatinized Starch, and continue the addition of the Hyposulphite until the blue color of the mixture is just destroyed, noting the number (*n*) of cubic centimeters added. Then take of the Solution of Hyposulphite of Sodium ten times (10*n*) this number of cubic centimeters, and add thereto enough Distilled Water to make the solution measure *one thousand* (1000) *cubic centimeters.*

This solution should decolorize exactly an equal volume of the Volumetric Solution of Iodine.

Note.—The article to be tested, containing free iodine, either in itself or after addition of test-solution of iodide of potassium, is treated with this Volumetric Solution, added from a burette, until, on stirring, the color of iodine is just discharged. A little gelatinized starch being added just beore the iodine color disappears, the addition of the solution is continued for the exact discharge of the blue color of iodized starch.

One cubic centimeter is the equivalent of:

	Grammes
Sodium Hyposulphite, crystallized, $Na_2S_2O_3.5H_2O$	0.02480
Bromine, Br	0.00798
Chlorine, Cl	0.00354
Iodine, I	0.01266

The following articles are tested with this solution:

	Gm. taken.	C.c. required.	Per cent. of strength indicated.
Aqua Chlori	35.4	40	0.4, of chlorine.
Calx Chlorata	0.71	50	25, of chlorine.
Iodum	0.633	50	100, of iodine.
Liquor Iodi Compositus	12.66	50	5, of iodine.
Liquor Sodæ Chloratæ	8.88	50	2, of chlorine.
Tinctura Iodi	6.33	40	8, of iodine.

3. Volumetric Solution of Iodine.

I; 126.6. 12.66 Grammes in 1 Liter.

Iodine, *twelve and sixty-six hundredths grammes*	12.66
Iodide of Potassium, *eighteen grammes*	18.00
Distilled Water, *a sufficient quantity,*	
To make *one thousand cubic centimeters*	1000

Dissolve the Iodide of Potassium in about *seven hundred* (700) *cubic centimeters* of Distilled Water; in this solution dissolve the Iodine, and add enough Distilled Water to make the solution measure *one thousand* (1000) *cubic centimeters.*

Note.—The article to be tested is first treated with a little gelatinized starch, and afterward the Volumetric Solution added, from a burette, until, on stirring, the blue color ceases to be discharged.

One cubic centimeter is the equivalent of:

	Gramme.
Iodine, I	0.01266
Arsenious Acid (anhydride), As_2O_3	0.004945
Potassium Sulphite, crystallized, $K_2SO_3.2H_2O$	0.0097
Sodium Bisulphite, $NaHSO_3$	0.0052
Sodium Hyposulphite, crystallized, $Na_2S_2O_3.5H_2O$	0.0248
Sodium Sulphite, crystallized, $Na_2SO_3.7H_2O$	0.0126
Sulphurous Acid (anhydride), SO_2	0.0032

The following articles are tested with this solution:

	Gm. taken.	C.c. required.	Per cent. of strength indicated.
Acidum Arseniosum	0.247	48.5	97, of the anhydride.
Acidum Sulphurosum	1.28	14	3. 5, of the dry gas.
Liquor Acidi Arseniosi	24.70	48.5	0.97, of the anhydride.
Liquor Potassii Arsenitis	24.70	48.5	0.97, of the anhydride.
Potassii Sulphis	0.485	45	90, of the crystallized salt.
Sodii Bisulphis	0.26	45	90, of the salt.
Sodii Sulphis	0.63	45	90, of the crystallized salt.

4. Volumetric Solution of Nitrate of Silver.

$AgNO_3$; 169.7. 16.97 Grammes in 1 Liter.

Nitrate of Silver, well-crystallized and dry, *sixteen and ninety-seven hundredths grammes*	16.97
Distilled Water, *a sufficient quantity,*	
To make *one thousand cubic centimeters*	1000

Dissolve the Nitrate of Silver in about *seven hundred* (700) *parts* of Distilled Water, and add of the latter enough to make the solution measure *one thousand* (1000) *cubic centimeters.*

Note.—The Volumetric Solution is added, from a burette, to the solution to be tested, previously treated with a few drops of test-solution of bichromate of potassium, until a red precipitate remains after stirring. In testing cyanides, without addition of bichromate, the Volumetric Solution is added until a precipitate, just visible, remains after stirring.

One cubic centimeter is the equivalent of:

	Gramme.
Silver Nitrate, $AgNO_3$	0.01697
Ammonium Bromide, NH_4Br	0.00978
Ammonium Chloride, NH_4Cl	0.00534
Ferrous Bromide, $FeBr_2$	0.010775
Ferrous Iodide, FeI_2	0.015455
Hydrocyanic Acid, absolute, HCN	0.0027
Hydrocyanic Acid, HCN, (as alkali cyanide)	0.0054
Hydriodic Acid, HI	0.01276
Potassium Bromide, KBr	0.01188
Potassium Chloride, KCl	0.00744
Potassium Cyanide, KCN (to dissolve the precipitate)	0.0130
Sodium Bromide, NaBr	0.01028
Sodium Chloride, NaCl	0.00584

The following-named articles are tested with this solution :

	Gm. taken.	C.c. required.	Per cent. of strength indicated.
Acidum Hydrocyanicum Dilutum	6.75	50	2, of absolute acid.
Ammonii Bromidum	0.3	31.4	97, of the bromide.
Potassii Bromidum	0.3	25.7	97, of the bromide.
Potassii Cyanidum	0.65	45	90, of the cyanide.
Sodii Bromidum	0.3	29.8	97, of the bromide.
Syrupus Acidi Hydriodici	31.9	25	1, of absolute acid.
Syrupus Ferri Bromidi	5.39	50	10, of the bromide.
Syrupus Ferri Iodidi	7.73	50	10, of the iodide.

5. Volumetric Solution of Oxalic Acid.

$H_2C_2O_4.2H_2O$; 126. 63 Grammes in 1 Liter.

Oxalic Acid, in perfect crystals, *sixty-three grammes*	63
Distilled Water, *a sufficient quantity,*	
To make *one thousand cubic centimeters*	1000

Dissolve the Oxalic Acid in about *seven hundred* (700) *cubic centimeters* of Distilled Water, and then add of the latter enough to make the solution measure *one thousand* (1000) *cubic centimeters.*

Note.—The Volumetric Solution is gradually added, from a burette, to the article to be tested, until the mixture, after stirring, shows a neutral reaction with litmus or some other suitable indicator. If carbonic acid gas be liberated in the operation, it must be wholly expelled, by heat, before the neutral reaction can be obtained.

One cubic centimeter is the equivalent of :

	Gramme.
Oxalic Acid, crystallized, $H_2C_2O_4.2H_2O$	0.0630
Ammonia, absolute, NH_3	0.0170
Ammonium Carbonate, $NH_4HCO_3.NH_4NH_2CO_2$	0.05233
Lead Acetate, crystallized, $Pb(C_2H_3O_2)_2.3H_2O$	0.18925
Lead Subacetate, as $Pb_2O(C_2H_3O_2)_2$	0.13675
Potassium Acetate, $KC_2H_3O_2$ *	0.0980
Potassium Bicarbonate, $KHCO_3$	0.1000
Potassium Carbonate, anhydrous, K_2CO_3	0.0690
Potassium Citrate, crystallized, $K_3C_6H_5O_7.H_2O$ *	0.1080
Potassium Hydrate (Absolute Potassa), KHO	0.0560
Potassium Permanganate, $K_2Mn_2O_8$	0.0314
Potassium Sodium Tartrate, $KNaC_4H_4O_6.4H_2O$ *	0.1410

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* After ignition.

	Gramme
Potassium Tartrate $(K_2C_4H_4O_6)_2.H_2O$ *	0.1175
Sodium Bicarbonate, $NaHCO_3$	0.0840
Sodium Borate, crystallized, $Na_2B_4O_7.10H_2O$	0.1910
Sodium Carbonate, crystallized, $Na_2CO_3.10H_2O$	0.1430
Sodium Carbonate, anhydrous, Na_2CO_3	0.0530
Sodium Hydrate (Absolute Soda), NaHO	0.0400

The following-named articles are tested with this solution :

	Gm. taken.	C.c. required.	Per cent. of strength indicated.
Ammonii Carbonas	2.616	50	100, of the salt.
Aqua Ammoniæ	8.50	50	10, of the dry gas.
Aqua Ammoniæ Fortior	3.40	56	28, of the dry gas.
Liquor Plumbi Subacetatis	13.67	25	25, of the basic salt.
Liquor Potassæ	28.00	25	5, of the hydrate.
Liquor Sodæ	20.00	25	5, of the hydrate.
Potassa	2.80	45	90, of the hydrate.
Potassii Acetas *	4.90	49	98, of the salt.
Potassii Bicarbonas	5.00	50	100, of the salt.
Potassii Carbonas	3.45	40.5	81, of anhydrous salt.
Potassii Citras *	5.40	50	100, of the crystallized salt.
Potassii et Sodii Tartras *	3.53	25	100, of the salt.
Potassii Permanganas	0.785	24.7	98.8, of the salt.
Potassii Tartras *	2.94	25	100, of the crystallized salt.
Soda	2.00	45	90, of the hydrate.
Sodii Bicarbonas	4.20	49.5	99, of the salt.
Sodii Bicarbonas Venalis	4.20	47.5	95, of the salt.
Sodii Carbonas	7.15	49	98, of the crystallized salt.
Sodii Carbonas Exsiccatus	2.65	36.3	72.6, of anhydrous salt.
Spiritus Ammoniæ	8.50	50	10, of the dry gas.

6. Volumetric Solution of Soda.

NaHO ; 40. 40 Grammes in 1 Liter.

Oxalic Acid, in perfect crystals, *six and three-tenths grammes*	6.3
Solution of Soda,	
Distilled Water, of each, *a sufficient quantity*,	
To make *one hundred parts*	100

To the Oxalic Acid add, from a burette, enough Solution of Soda exactly to neutralize the acid, as indicated by the color of litmus, and note the number (*n*) of cubic centimeters of the Solution of Soda required. Take ten times (10*n*) this number of cubic centimeters of the same Solution of Soda, and add thereto enough Distilled Water to make the solution measure *one thousand* (1000) *cubic centimeters.*

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* After ignition.

This solution should neutralize exactly an equal volume of Volumetric Solution of Oxalic Acid.

Note.—The Volumetric Solution is gradually added, from a burette, to the article to be tested, until the mixture, on stirring, shows a neutral reaction with litmus or some other suitable indicator.

One cubic centimeter is the equivalent of:

	Gramme.
Sodium Hydrate (Absolute Soda), NaHO	0.0400
Acetic Acid, absolute, $HC_2H_3O_2$	0.0600
Citric Acid, crystallized, $H_3C_6H_5O_7.H_2O$	0.0700
Hydrobromic Acid, absolute, HBr	0.0808
Hydrochloric Acid, absolute, HCl	0.0364
Hydriodic Acid, absolute, HI	0.1276
Lactic Acid, absolute, $HC_3H_5O_3$	0.0900
Nitric Acid, absolute, HNO_3	0.0630
Oxalic Acid, crystallized, $H_2C_2O_4.2H_2O$	0.0630
Sulphuric Acid, absolute, H_2SO_4	0.0490
Tartaric Acid, crystallized, $H_2C_4H_4O_6$	0.0750

The following-named articles are tested with this solution:

	Gm. taken.	C.c. required.	Per cent. of strength indicated.
Acidum Aceticum	6.00	36	36, of the absolute acid.
Acidum Aceticum Dilutum	24.00	24	6, of the absolute acid.
Acidum Aceticum Glaciale	3.00	49.5	99, of the absolute acid.
Acidum Citricum	3.50	50	100, of the crystallized acid.
Acidum Hydrobromicum Dilutum	16.16	20	10, of the absolute acid.
Acidum Hydrochloricum	3.64	31.9	31.9, of the absolute acid.
Acidum Hydrochloricum Dilutum	7.28	20	10, of the absolute acid.
Acidum Lacticum	4.50	37.5	75, of the absolute acid.
Acidum Nitricum	3.15	34.7	69.4, of the absolute acid.
Acidum Nitricum Dilutum	12.60	20	10, of the absolute acid.
Acidum Sulphuricum	2.45	48	96, of the absolute acid.
Acidum Sulphuricum Aromaticum	9.80	36	18, of the total acids.
Acidum Sulphuricum Dilutum	9.80	20	10, of the absolute acid.
Acidum Tartaricum	3.75	50	100, of the crystallized acid.

TABLES.

TABLE OF ELEMENTARY SUBSTANCES.

Elements.	Symbol.	Atomic Weight.	Equivalent.	Elements.	Symbol.	Atomic Weight.	Equivalent.
Aluminium	Al	27	13.5	Molybdenum	Mo	95.5	42.75
Antimony	Sb	120	120	Nickel	Ni	58	29
Arsenic	As	74.9	74.9	Niobium	Nb	94	94
Barium	Ba	136.8	68.4	Nitrogen[3]	N	14	14
Beryllium (Glucinum)	Be	9	9	Osmium	Os	198.5	99.25
Bismuth	Bi	210	210	Oxygen[4]	O	16	8
Boron	B	11	11	Palladium	Pd	105.7	52.85
Bromine	Br	79.8	79.8	Phosphorus	P	31	31
Cadmium	Cd	111.8	55.9	Platinum	Pt	194.4	97.2
Caesium	Cs	132.6	132.6	Potassium	K	39	39
Calcium	Ca	40	20	Rhodium	Rh	104.1	52.05
Carbon[1]	C	12	6	Rubidium	Rb	85.3	85.3
Cerium	Ce	141	70.5	Ruthenium	Ru	104.2	52.1
Chlorine[2]	Cl	35.4	35.4	Scandium	Sc	44	22
Chromium	Cr	52.4	26.2	Selenium	Se	78.8	39.4
Cobalt	Co	58.9	29.45	Silicon	Si	28	14
Copper	Cu	63.2	31.6	Silver	Ag	107.7	107.7
Didymium	Di	144.6	72.3	Sodium	Na	23	23
Erbium	E	165.9	82.95	Strontium	Sr	87.4	43.7
Fluorine	Fl	19	19	Sulphur[5]	S	32	16
Gallium	G	68.8	34.4	Tantalum	Ta	182	182
Gold	Au	196.2	196.2	Tellurium	Te	128	64
Hydrogen	H	1	1	Thallium	Tl	203.7	203.7
Indium	In	113.4	56.7	Thorium	Th	233	116.5
Iodine	I	126.6	126.6	Tin	Sn	117.7	58.85
Iridium	Ir	192.7	96.35	Titanium	Ti	48	24
Iron	Fe	55.9	27.95	Tungsten	W	183.6	91.8
Lanthanum	La	138.5	138.5	Uranium	U	238.5	119.25
Lead	Pb	206.5	103.25	Vanadium	V	51.3	51.3
Lithium	Li	7	7	Ytterbium	Yb	172.7	172.7
Magnesium	Mg	24	12	Yttrium	Y	89.8	89.8
Manganese	Mn	54	27	Zinc	Zn	64.9	32.45
Mercury	Hg	199.7	99.85	Zirconium	Zr	90	45

[1] Carbon: 11.9736.

[2] Chlorine: 35.370.

[3] Nitrogen: 14.021.

[4] Oxygen: 15.9633.

[5] Sulphur: 31.984.

TABLE OF THERMOMETRIC EQUIVALENTS

ACCORDING TO THE CENTIGRADE AND FAHRENHEIT SCALES.

Given Centigrade: n° C. $= \frac{9\,n^\circ}{5} + 32$ Sought Fahrenheit:

Given Fahrenheit: n° F. $= \frac{5\,(n - 32)}{9}$ Sought Centigrade:

C.°	F.°	C.°	F.°	C.°	F.°	C.°	F.°
−39.4444	−39	−22.7778	−9	−6	21.2	11.1111	52
−39	−38.2	−22.2222	−8	−5.5556	22	11.6667	53
−38.8889	−38	−22	−7.6	−5	23	12	53.6
−38.3333	−37	−21.6667	−7	−4.4444	24	12.2222	54
−38	−36.4	−21.1111	−6	−4	24.8	12.7778	55
−37.7778	−36	−21	−5.8	−3.8889	25	13	55.4
−37.2222	−35	−20.5556	−5	−3.3333	26	13.3333	56
−37	−34.6	−20	−4	−3	26.6	13.8889	57
−36.6667	−34	−19.4444	−3	−2.7778	27	14	57.2
−36.1111	−33	−19	−2.2	−2.2222	28	14.4444	58
−36	−32.8	−18.8889	−2	−2	28.4	15	59
−35.5556	−32	−18.3333	−1	−1.6667	29	15.5556	60
−35	−31	−18	−0.4	−1.1111	30	16	60.8
−34.4444	−30	−17.7778	0	−1	30.2	16.1111	61
−34	−29.2	−17.2222	1	−0.5556	31	16.6667	62
−33.8889	−29	−17	1.4	0	32	17	62.6
−33.3333	−28	−16.6667	2	0.5556	33	17.2222	63
−33	−27.4	−16.1111	3	1	33.8	17.7778	64
−32.7778	−27	−16	3.2	1.1111	34	18	64.4
−32.2222	−26	−15.5556	4	1.6667	35	18.3333	65
−32	−25.6	−15	5	2	35.6	18.8889	66
−31.6667	−25	−14.4444	6	2.2222	36	19	66.2
−31.1111	−24	−14	6.8	2.7778	37	19.4444	67
−31	−23.8	−13.8889	7	3	37.4	20	68
−30.5556	−23	−13.3333	8	3.3333	38	20.5556	69
−30	−22	−13	8.6	3.8889	39	21	69.8
−29.4444	−21	−12.7778	9	4	39.2	21.1111	70
−29	−20.2	−12.2222	10	4.4444	40	21.6667	71
−28.8889	−20	−12	10.4	5	41	22	71.6
−28.3333	−19	−11.6667	11	5.5556	42	22.2222	72
−28	−18.4	−11.1111	12	6	42.8	22.7778	73
−27.7778	−18	−11	12.2	6.1111	43	23	73.4
−27.2222	−17	−10.5556	13	6.6667	44	23.3333	74
−27	−16.6	−10	14	7	44.6	23.8889	75
−26.6667	−16	−9.4444	15	7.2222	45	24	75.2
−26.1111	−15	−9	15.8	7.7778	46	24.4444	76
−26	−14.8	−8.8889	16	8	46.4	25	77
−25.5556	−14	−8.3333	17	8.3333	47	25.5556	78
−25	−13	−8	17.6	8.8889	48	26	78.8
−24.4444	−12	−7.7778	18	9	48.2	26.1111	79
−24	−11.2	−7.2222	19	9.4444	49	26.6667	80
−23.8889	−11	−7	19.4	10	50	27	80.6
−23.3333	−10	−6.6667	20	10.5556	51	27.2222	81
−23	−9.4	−6.1111	21	11	51.8	27.7778	82

Thermometric Equivalents.—*Continued.*

C.°	F.°	C.°	F.°	C.°	F.°	C.°	F.°
28	82.4	48.8889	120	69.4444	157	90.5556	195
28.3333	83	49	120.2	70	158	91	195.8
28.8889	84	49.4444	121	70.5556	159	91.1111	196
29	84.2	50	122	71	159.8	91.6667	197
29.4444	85	50.5556	123	71.1111	160	92	197.6
30	86	51	123.8	71.6667	161	92.2222	198
30.5556	87	51.1111	124	72	161.6	92.7778	199
31	87.8	51.6667	125	72.2222	162	93	199.4
31.1111	88	52	125.6	72.7778	163	93.3333	200
31.6667	89	52.2222	126	73	163.4	93.8889	201
32	89.6	52.7778	127	73.3333	164	94	201.2
32.2222	90	53	127.4	73.8889	165	94.4444	202
32.7778	91	53.3333	128	74	165.2	95	203
33	91.4	53.8889	129	74.4444	166	95.5556	204
33.3333	92	54	129.2	75	167	96	204.8
33.8889	93	54.4444	130	75.5556	168	96.1111	205
34	93.2	55	131	76	168.8	96.6667	206
34.4444	94	55.5556	132	76.1111	169	97	206.6
35	95	56	132.8	76.6667	170	97.2222	207
35.5556	96	56.1111	133	77	170.6	97.7778	208
36	96.8	56.6667	134	77.2222	171	98	208.4
36.1111	97	57	134.6	77.7778	172	98.3333	209
36.6667	98	57.2222	135	78	172.4	98.8889	210
37	98.6	57.7778	136	78.3333	173	99	210.2
37.2222	99	58	136.4	78.8889	174	99.4444	211
37.7778	100	58.3333	137	79	174.2	100	212
38	100.4	58.8889	138	79.4444	175	100.5556	213
38.3333	101	59	138.2	80	176	101	213.8
38.8889	102	59.4444	139	80.5556	177	101.1111	214
39	102.2	60	140	81	177.8	101.6667	215
39.4444	103	60.5556	141	81.1111	178	102	215.6
40	104	61	141.8	81.6667	179	102.2222	216
40.5556	105	61.1111	142	82	179.6	102.7778	217
41	105.8	61.6667	143	82.2222	180	103	217.4
41.1111	106	62	143.6	82.7778	181	103.3333	218
41.6667	107	62.2222	144	83	181.4	103.8889	219
42	107.6	62.7778	145	83.3333	182	104	219.2
42.2222	108	63	145.4	83.8889	183	104.4444	220
42.7778	109	63.3333	146	84	183.2	105	221
43	109.4	63.8889	147	84.4444	184	105.5556	222
43.3333	110	64	147.2	85	185	106	222.8
43.8889	111	64.4444	148	85.5556	186	106.1111	223
44	111.2	65	149	86	186.8	106.6667	224
44.4444	112	65.5556	150	86.1111	187	107	224.6
45	113	66	150.8	86.6667	188	107.2222	225
45.5556	114	66.1111	151	87	188.6	107.7778	226
46	114.8	66.6667	152	87.2222	189	108	226.4
46.1111	115	67	152.6	87.7778	190	108.3333	227
46.6667	116	67.2222	153	88	190.4	108.8889	228
47	116.6	67.7778	154	88.3333	191	109	228.2
47.2222	117	68	154.4	88.8889	192	109.4444	229
47.7778	118	68.3333	155	89	192.2	110	230
48	118.4	68.8889	156	89.4444	193	110.5556	231
48.3333	119	69	156.2	90	194	111	231.8

THERMOMETRIC EQUIVALENTS. — *Continued.*

C.°	F.°	C.°	F.°	C.°	F.°	C.°	F.°
111.1111	232	132	269.6	152.7778	307	173.3333	344
111.6667	233	132 2222	270	153	307.4	173.8889	345
112	233.6	132.7778	271	153.3333	308	174	345.2
112.2222	234	133	271.4	153.8889	309	174.4444	346
112.7778	235	133.3333	272	154	309.2	175	347
113	235.4	133.8889	273	154.4444	310	175.5556	348
113.3333	236	134	273.2	155	311	176	348.8
113.8889	237	134.4444	274	155.5556	312	176.1111	349
114	237.2	135	275	156	312.8	176.6667	350
114.4444	238	135.5556	276	156.1111	313	177	350.6
115	239	136	276.8	156.6667	314	177.2222	351
115.5556	240	136.1111	277	157	314.6	177.7778	352
116	240.8	136.6667	278	157.2222	315	178	352.4
116.1111	241	137	278.6	157.7778	316	178.3333	353
116.6667	242	137.2222	279	158	316.4	178.8889	354
117	242.6	137.7778	280	158.3333	317	179	354.2
117.2222	243	138	280.4	158.8889	318	179.4444	355
117.7778	244	138.3333	281	159	318.2	180	356
118	244.4	138.8889	282	159.4444	319	180.5556	357
118.3333	245	139	282.2	160	320	181	357.8
118.8889	246	139.4444	283	160.5556	321	181.1111	358
119	246.2	140	284	161	321.8	181.6667	359
119.4444	247	140.5556	285	161.1111	322	182	359.6
120	248	141	285.8	161.6667	323	182.2222	360
120.5556	249	141.1111	286	162	323.6	182.7778	361
121	249.8	141.6667	287	162.2222	324	183	361.4
121.1111	250	142	287.6	162.7778	325	183.3333	362
121.6667	251	142.2222	288	163	325.4	183.8889	363
122	251.6	142.7778	289	163.3333	326	184	363.2
122 2222	252	143	289.4	163.8889	327	184.4444	364
122.7778	253	143.3333	290	164	327.2	185	365
123	253.4	143.8889	291	164.4444	328	185.5556	366
123.3333	254	144	291.2	165	329	186	366.8
123.8889	255	144.4444	292	165.5556	330	186.1111	367
124	255.2	145	293	166	330.8	186.6667	368
124.4444	256	145.5556	294	166.1111	331	187	368.6
125	257	146	294.8	166.6667	332	187.2222	369
125.5556	258	146.1111	295	167	332.6	187.7778	370
126	258.8	146 6667	296	167.2222	333	188	370.4
126.1111	259	147	296.6	167.7778	334	188.3333	371
126.6667	260	147.2222	297	168	334.4	188.8889	372
127	260.6	147.7778	298	168.3333	335	189	372.2
127.2222	261	148	298.4	168.8889	336	189.4444	373
127.7778	262	148.3333	299	169	336.2	190	374
128	262.4	148.8889	300	169.4444	337	190.5556	375
128.3333	263	149	300.2	170	338	191	375.8
128.8889	264	149.4444	301	170.5556	339	191.1111	376
129	234.2	150	302	171	339.8	191.6667	377
129 4444	265	150.5556	303	171.1111	340	192	377.6
130	266	151	303.8	171 6667	341	192.2222	378
130.5556	267	151.1111	304	172	341.6	192.7778	379
131	267.8	151.6667	305	172.2222	342	193	379.4
131.1111	268	152	305.6	172.7778	343	193.3333	380
131.6667	269	152.2222	306	173	343.4	193.8889	381

THERMOMETRIC EQUIVALENTS.—*Continued.*

C.°	F.°	C.°	F.°	C.°	F.°	C.°	F.°
194	381.2	215	419	236	456.8	256.6667	494
194.4444	382	215.5556	420	236.1111	457	257	494.6
195	383	216	420.8	236.6667	458	257.2222	495
195.5556	384	216.1111	421	237	458.6	257.7778	496
196	384.8	216.6667	422	237.2222	459	258	496.4
196.1111	385	217	422.6	237.7778	460	258.3333	497
196.6667	386	217.2222	423	238	460.4	258.8889	498
197	386.6	217.7778	424	238.3333	461	259	498.2
197.2222	387	218	424.4	238.8889	462	259.4444	499
197.7778	388	218.3333	425	239	462.2	260	500
198	388.4	218.8889	426	239.4444	463	260.5556	501
198.3333	389	219	426.2	240	464	261	501.8
198.8889	390	219.4444	427	240.5556	465	261.1111	502
199	390.2	220	428	241	465.8	261.6667	503
199.4444	391	220.5556	429	241.1111	466	262	503.6
200	392	221	429.8	241.6667	467	262.2222	504
200.5556	393	221.1111	430	242	467.6	262.7778	505
201	393.8	221.6667	431	242.2222	468	263	505.4
201.1111	394	222	431.6	242.7778	469	263.3333	506
201.6667	395	222.2222	432	243	469.4	263.8889	507
202	395.6	222.7778	433	243.3333	470	264	507.2
202.2222	396	223	433.4	243.8889	471	264.4444	508
202.7778	397	223.3333	434	244	471.2	265	509
203	397.4	223.8889	435	244.4444	472	265.5556	510
203.3333	398	224	435.2	245	473	266	510.8
203.8889	399	224.4444	436	245.5556	474	266.1111	511
204	399.2	225	437	246	474.8	266.6667	512
204.4444	400	225.5556	438	246.1111	475	267	512.6
205	401	226	438.8	246.6667	476	267.2222	513
205.5556	402	226.1111	439	247	476.6	267.7778	514
206	402.8	226.6667	440	247.2222	477	268	514.4
206.1111	403	227	440.6	247.7778	478	268.3333	515
206.6667	404	227.2222	441	248	478.4	268.8889	516
207	404.6	227.7778	442	248.3333	479	269	516.2
207.2222	405	228	442.4	248.8889	480	269.4444	517
207.7778	406	228.3333	443	249	480.2	270	518
208	406.4	228.8889	444	249.4444	481	270.5556	519
208.3333	407	229	444.2	250	482	271	519.8
208.8889	408	229.4444	445	250.5556	483	271.1111	520
209	408.2	230	446	251	483.8	271.6667	521
209.4444	409	230.5556	447	251.1111	484	272	521.6
210	410	231	447.8	251.6667	485	272.2222	522
210.5556	411	231.1111	448	252	485.6	272.7778	523
211	411.8	231.6667	449	252.2222	486	273	523.4
211.1111	412	232	449.6	252.7778	487	273.3333	524
211.6667	413	232.2222	450	253	487.4	273.8889	525
212	413.6	232.7778	451	253.3333	488	274	525.2
212.2222	414	233	451.4	253.8889	489	274.4444	526
212.7778	415	233.3333	452	254	489.2	275	527
213	415.4	233.8889	453	254.4444	490	275.5556	528
213.3333	416	234	453.2	255	491	276	528.8
213.8889	417	234.4444	454	255.5556	492	276.1111	529
214	417.2	235	455	256	492.8	276.6667	530
214.4444	418	235.5556	456	256.1111	493	277	530.6

THERMOMETRIC EQUIVALENTS.—*Continued.*

C.°	F.°	C.	F.°	C.°	F.°	C.°	F.°
277.2222	531	298	568.4	318.8889	606	339.4444	643
277.7778	532	298.3333	569	319	606.2	340	644
278	532.4	298.8889	570	319.4444	607	340.5556	645
278.3333	533	299	570.2	320	608	341	645.8
278.8889	534	299.4444	571	320.5556	609	341.1111	646
279	534.2	300	572	321	609.8	341.6667	647
279.4444	535	300.5556	573	321.1111	610	342	647.6
280	536	301	573.8	321.6667	611	342.2222	648
280.5556	537	301.1111	574	322	611.6	342.7778	649
281	537.8	301.6667	575	322.2222	612	343	649.4
281.1111	538	302	575.6	322.7778	613	343.3333	650
281.6667	539	302.2222	576	323	613.4	343.8889	651
282	539.6	302.7778	577	323.3333	614	344	651.2
282.2222	540	303	577.4	323.8889	615	344.4444	652
282.7778	541	303.3333	578	324	615.2	345	653
283	541.4	303.8889	579	324.4444	616	345.5556	654
283.3333	542	304	579.2	325	617	346	654.8
283.8889	543	304.4444	580	325.5556	618	346.1111	655
284	543.2	305	581	326	618.8	346.6667	656
284.4444	544	305.5556	582	326.1111	619	347	656.6
285	545	306	582.8	326.6667	620	347.2222	657
285.5556	546	306.1111	583	327	620.6	347.7778	658
286	546.8	306.6667	584	327.2222	621	348	658.4
286.1111	547	307	584.6	327.7778	622	348.3333	659
286.6667	548	307.2222	585	328	622.4	348.8889	660
287	548.6	307.7778	586	328.3333	623	349	660.2
287.2222	549	308	586.4	328.8889	624	349.4444	661
287.7778	550	308.3333	587	329	624.2	350	662
288	550.4	308.8889	588	329.4444	625	350.5556	663
288.3333	551	309	588.2	330	626	351	663.8
288.8889	552	309.4444	589	330.5556	627	351.1111	664
289	552.2	310	590	331	627.8	351.6667	665
289.4444	553	310.5556	591	331.1111	628	352	665.6
290	554	311	591.8	331.6667	629	352.2222	666
290.5556	555	311.1111	592	332	629.6	352.7778	667
291	555.8	311.6667	593	332.2222	630	353	667.4
291.1111	556	312	593.6	332.7778	631	353.3333	668
291.6667	557	312.2222	594	333	631.4	353.8889	669
292	557.6	312.7778	595	333.3333	632	354	669.2
292.2222	558	313	595.4	333.8889	633	354.4444	670
292.7778	559	313.3333	596	334	633.2	355	671
293	559.4	313.8889	597	334.4444	634	355.5556	672
293.3333	560	314	597.2	335	635	356	672.8
293.8889	561	314.4444	598	335.5556	636	356.1111	673
294	561.2	315	599	336	636.8	356.6667	674
294.4444	562	315.5556	600	336.1111	637	357	674.6
295	563	316	600.8	336.6667	638	357.2222	675
295.5556	564	316.1111	601	337	638.6	357.7778	676
296	564.8	316.6667	602	337.2222	639	358	676.4
296.1111	565	317	602.6	337.7778	640	358.3333	677
296.6667	566	317.2222	603	338	640.4	358.8889	678
297	566.6	317.7778	604	338.3333	641	359	678.2
297.2222	567	318	604.4	338.8889	642	359.4444	679
297.7778	568	318.3333	605	339	642.2	360	680

TABLES OF PERCENTAGE AND SPECIFIC GRAVITY.

ALCOHOL, according to Hehner.

Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.
1.0000	**0.00**	**0.00**						
0.9999	0.05	0.07	**0.9959**	**2.33**	**2.93**	**0.9919**	**4.69**	**5.86**
8	0.11	0.13	8	2.39	3.00	8	4.75	5.94
7	0.16	0.20	7	2.44	3.07	7	4.81	6.02
6	0.21	0.26	6	2.50	3.14	6	4.87	6.10
5	0.26	0.33	5	2.56	3.21	5	4.94	6.17
4	0.32	0.40	4	2.61	3.28	4	5.00	6.24
3	0.37	0.46	3	2.67	3.35	3	5.06	6.32
2	0.42	0.53	2	2.72	3.42	2	5.12	6.40
1	0.47	0.60	1	2.78	3.49	1	5.19	6.48
0	0.53	0.66	0	2.83	3.55	0	5.25	6.55
0.9989	**0.58**	**0.73**	**0.9949**	**2.89**	**3.62**	**0.9909**	**5.31**	**6.63**
8	0.63	0.79	8	2.94	3.69	8	5.37	6.71
7	0.68	0.86	7	3.00	3.76	7	5.44	6.78
6	0.74	0.93	6	3.06	3.83	6	5.50	6.86
5	0.79	0.99	5	3.12	3.90	5	5.56	6.94
4	0.84	1.06	4	3.18	3.98	4	5.62	7.01
3	0.89	1.13	3	3.24	4.05	3	5.69	7.09
2	0.95	1.19	2	3.29	4.12	2	5.75	7.17
1	1.00	1.26	1	3.35	4.20	1	5.81	7.25
0	1.06	1.34	0	3.41	4.27	0	5.87	7.32
0.9979	**1.12**	**1.42**	**0.9939**	**3.47**	**4.34**	**0.9899**	**5.94**	**7.40**
8	1.19	1.49	8	3.53	4.42	8	6.00	7.48
7	1.25	1.57	7	3.59	4.49	7	6.07	7.57
6	1.31	1.65	6	3.65	4.56	6	6.14	7.66
5	1.37	1.73	5	3.71	4.63	5	6.21	7.74
4	1.44	1.81	4	3 76	4.71	4	6.28	7.83
3	1.50	1.88	3	3.82	4.78	3	6.36	7.92
2	1.56	1.96	2	3.88	4.85	2	6.43	8.01
1	1.62	2.04	1	3.94	4.93	1	6.50	8.10
0	1.69	2.12	0	4.00	5.00	0	6.57	8.18
0.9969	**1.75**	**2.20**	**0.9929**	**4.06**	**5.08**	**0.9889**	**6.64**	**8.27**
8	1.81	2.27	8	4.12	5.16	8	6.71	8.36
7	1.87	2.35	7	4.19	5.24	7	6 78	8.45
6	1.94	2.43	6	4.25	5.32	6	6.86	8.54
5	2.00	2.51	5	4.31	5.39	5	6.93	8.63
4	2.06	2.58	4	4.37	5.47	4	7.00	8.72
3	2.11	2.62	3	4.44	5.55	3	7.07	8.80
2	2.17	2.72	2	4.50	5.63	2	7.13	8.88
1	2.22	2.79	1	4.56	5.71	1	7.20	8.96
0	2.28	2.86	0	4.62	5.78	0	7.27	9.04

ALCOHOL.—*Continued.*

Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.
0.9879	**7.33**	**9.13**	**0.9829**	**10.92**	**13.52**	**0.9779**	**14.91**	**18.36**
8	7.40	9.21	8	11.00	13.62	8	15.00	18.48
7	7.47	9.29	7	11.08	13.71	7	15.08	18.58
6	7.53	9.37	6	11.15	13.81	6	15.17	18.68
5	7.60	9.45	5	11.23	13.90	5	15.25	18.78
4	7.67	9.54	4	11.31	13.99	4	15.33	18.88
3	7.73	9.62	3	11.38	14.09	3	15.42	18.98
2	7.80	9.70	2	11.46	14.18	2	15.50	19.08
1	7.87	9.78	1	11.54	14.27	1	15.58	19.18
0	7.93	9.86	0	11.62	14.37	0	15.67	19.28
0.9869	**8.00**	**9.95**	**0.9819**	**11.69**	**14.46**	**0.9769**	**15.75**	**19.39**
8	8.07	10.03	8	11.77	14.56	8	15.83	19.49
7	8.14	10.12	7	11.85	14.65	7	15.92	19.59
6	8.21	10.21	6	11.92	14.74	6	16.00	19.68
5	8.29	10.30	5	12.00	14.84	5	16.08	19.78
4	8.36	10.38	4	12.08	14.93	4	16.15	19.87
3	8.43	10.47	3	12.15	15.02	3	16.23	19.96
2	8.50	10.56	2	12.23	15.12	2	16.31	20.06
1	8.57	10.65	1	12.31	15.21	1	16.38	20.15
0	8.64	10.73	0	12.38	15.30	0	16.46	20.24
0.9859	**8.71**	**10.82**	**0.9809**	**12.46**	**15.40**	**0.9759**	**16.54**	**20.33**
8	8.79	10.91	8	12.54	15.49	8	16.62	20.43
7	8.86	11.00	7	12.62	15.58	7	16.69	20.52
6	8.93	11.08	6	12.69	15.68	6	16.77	20.61
5	9.00	11.17	5	12.77	15.77	5	16.85	20.71
4	9.07	11.26	4	12.85	15.86	4	16.92	20.80
3	9.14	11.35	3	12.92	15.96	3	17.00	20.89
2	9.21	11.44	2	13.00	16.05	2	17.08	20.99
1	9.29	11.52	1	13.08	16.15	1	17.17	21.09
0	9.36	11.61	0	13.15	16.24	0	17.25	21.19
0.9849	**9.43**	**11.70**	**0.9799**	**13.23**	**16.33**	**0.9749**	**17.33**	**21.29**
8	9.50	11.79	8	13.31	16.43	8	17.42	21.39
7	9.57	11.87	7	13.38	16.52	7	17.50	21.49
6	9.64	11.96	6	13.46	16.61	6	17.58	21.59
5	9.71	12.05	5	13.54	16.70	5	17.67	21.69
4	9.79	12.13	4	13.62	16.80	4	17.75	21.79
3	9.86	12.22	3	13.69	16.89	3	17.83	21.89
2	9.93	12.31	2	13.77	16.98	2	17.92	21.99
1	10.00	12.40	1	13.85	17.08	1	18.00	22.09
0	10.08	12.49	0	13.92	17.17	0	18.08	22.18
0.9839	**10.15**	**12.58**	**0.9789**	**14.00**	**17.26**	**0.9739**	**18.15**	**22.27**
8	10.23	12.68	8	14.09	17.37	8	18.23	22.36
7	10.31	12.77	7	14.18	17.48	7	18.31	22.46
6	10.38	12.87	6	14.27	17.59	6	18.38	22.55
5	10.46	12.96	5	14.36	17.70	5	18.46	22.64
4	10.54	13.05	4	14.45	17.81	4	18.54	22.73
3	10.62	13.15	3	14.55	17.92	3	18.62	22.82
2	10.69	13.24	2	14.64	18.03	2	18.69	22.92
1	10.77	13.34	1	14.73	18.14	1	18.77	23.01
0	10.85	13.43	0	14.82	18.25	0	18.85	23.10

ALCOHOL.—*Continued.*

Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.
0.9729	**18.92**	**23.19**	**0.9679**	**22.92**	**27.95**	**0.9629**	**26.60**	**32.27**
8	19.00	23.28	8	23.00	28.04	8	26.67	32.34
7	19.08	23.38	7	23.08	28.13	7	26.73	32.42
6	19.17	23.48	6	23.15	28.22	6	26.80	32.50
5	19.25	23.58	5	23.23	28.31	5	26.87	32.58
4	19.33	23.68	4	23.31	28.41	4	26.93	32.65
3	19.42	23.78	3	23.38	28.50	3	27.00	32.73
2	19.50	23.88	2	23.46	28.59	2	27.07	32.81
1	19.58	23.98	1	23.54	28.68	1	27.14	32.90
0	19.67	24.08	0	23.62	28.77	0	27.21	32.98
0.9719	**19.75**	**24.18**	**0.9669**	**23.69**	**28.86**	**0.9619**	**27.29**	**33.06**
8	19.83	24.28	8	23.77	28.95	8	27.36	33.15
7	19.92	24.38	7	23.85	29.04	7	27.43	33.23
6	20.00	24.48	6	23.92	29.13	6	27.50	33.31
5	20.08	24.58	5	24.00	29.22	5	27.57	33.39
4	20.17	24.68	4	24.08	29.31	4	27.64	33.48
3	20.25	24.78	3	24.15	29.40	3	27.71	33.56
2	20.33	24.88	2	24.23	29.49	2	27.79	33.64
1	20.42	24.98	1	24.31	29.58	1	27.86	33.73
0	20.50	25.07	0	24.38	29.67	0	27.93	33.81
0.9709	**20.58**	**25.17**	**0.9659**	**24.46**	**29.76**	**0.9609**	**28.00**	**33.89**
8	20.67	25.27	8	24.54	29.86	8	28.06	33.97
7	20.75	25.37	7	24.62	29.95	7	28.12	34.04
6	20.83	25.47	6	24.69	30.04	6	28.19	34.11
5	20.92	25.57	5	24.77	30.13	5	28.25	34.18
4	21.00	25.67	4	24.85	30.22	4	28.31	34.25
3	21.08	25.76	3	24.92	30.31	3	28.37	34.33
2	21.15	25.86	2	25.00	30.40	2	28.44	34.40
1	21.23	25.95	1	25.07	30.48	1	28.50	34.47
0	21.31	26.04	0	25.14	30.57	0	28.56	34.54
0.9699	**21.38**	**26.13**	**0.9649**	**25.21**	**30.65**	**0.9599**	**28.62**	**34.61**
8	21.46	26.22	8	25.29	30.73	8	28.69	34.69
7	21.54	26.31	7	25.36	30.82	7	28.75	34.76
6	21.62	26.40	6	25.43	30.90	6	28.81	34.83
5	21.69	26.49	5	25.50	30.98	5	28.87	34.90
4	21.77	26.58	4	25.57	31.07	4	28.94	34.97
3	21.85	26.67	3	25.64	31.15	3	29.00	35.05
2	21.92	26.77	2	25.71	31.23	2	29.07	35.12
1	22.00	26.86	1	25.79	31.32	1	29.13	35.20
0	22.08	26.95	0	25.86	31.40	0	29.20	35.28
0.9689	**22.15**	**27.04**	**0.9639**	**25.93**	**31.48**	**0.9589**	**29.27**	**35.35**
8	22.23	27.13	8	26.00	31.57	8	29.33	35.43
7	22.31	27.22	7	26.07	31.65	7	29.40	35.51
6	22.38	27.31	6	26.13	31.72	6	29.47	35.58
5	22.46	27.40	5	26.20	31.80	5	29.53	35.66
4	22.54	27.49	4	26.27	31.88	4	29.60	35.74
3	22.62	27.59	3	26.33	31.96	3	29.67	35.81
2	22.69	27.68	2	26.40	32.03	2	29.73	35.89
1	22.77	27.77	1	26.47	32.11	1	29.80	35.97
0	22.85	27.86	0	26.53	32.19	0	29.87	36.04

ALCOHOL.—*Continued.*

Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.
0.9579	**29.93**	**36.12**	**0.9529**	**32.94**	**39.54**	**0.9479**	**33.55**	**42.45**
8	30.00	36.20	8	33.00	39.61	8	35.60	42.51
7	30.06	36.26	7	33.06	39.68	7	35.65	42.56
6	30.11	36.32	6	33.12	39.74	6	35.70	42.62
5	30.17	36.39	5	33.18	39.81	5	35.75	42.67
4	30.22	36.45	4	33.24	39.87	4	35.80	42.73
3	30.28	36.51	3	33.29	39.94	3	35.85	42.78
2	30.33	36.57	2	33.35	40.01	2	35.90	42.84
1	30.39	36.64	1	33.41	40.07	1	35.95	42.89
0	30.44	36.70	0	33.47	40.14	0	36.00	42.95
0.9569	**30.50**	**36.76**	**0.9519**	**33.53**	**40.20**	**0.9469**	**36.06**	**43.01**
8	30.56	36.83	8	33.59	40.27	8	36.11	43.07
7	30.61	36.89	7	33.65	40.34	7	36.17	43.13
6	30.67	36.95	6	33.71	40.40	6	36.22	43.19
5	30.72	37.02	5	33.76	40.47	5	36.28	43.26
4	30.78	37.08	4	33.82	40.53	4	36.33	43.32
3	30.83	37.14	3	33.88	40.60	3	36.39	43.38
2	30.89	37.20	2	33.94	40.67	2	36.44	43.44
1	30.94	37.27	1	34.00	40.74	1	36.50	43.50
0	31.00	37.34	0	34.05	40.79	0	36.56	43.56
0.9559	**31.06**	**37.41**	**0.9509**	**34.10**	**40.84**	**0.9459**	**36.61**	**43.63**
8	31.12	37.48	8	34.14	40.90	8	36.67	43.69
7	31.19	37.55	7	34.19	40.95	7	36.72	43.75
6	31.25	37.62	6	34.24	41.00	6	36.78	43.81
5	31.31	37.69	5	34.29	41.05	5	36.83	43.87
4	31.37	37.76	4	34.33	41.11	4	36.89	43.93
3	31.44	37.83	3	34.38	41.16	3	36.94	44.00
2	31.50	37.90	2	34.43	41.21	2	37.00	44.06
1	31.56	37.97	1	34.48	41.26	1	37.06	44.12
0	31.62	38.04	0	34.52	41.32	0	37.11	44.18
0.9549	**31.69**	**38.11**	**0.9499**	**34.57**	**41.37**	**0.9449**	**37.17**	**44.24**
8	31.75	38.18	8	34.62	41.42	8	37.22	44.30
7	31.81	38.25	7	34.67	41.48	7	37.28	44.36
6	31.87	38.33	6	34.71	41.53	6	37.33	44.43
5	31.94	38.40	5	34.76	41.58	5	37.39	44.49
4	32.00	38.47	4	34.81	41.63	4	37.44	44.55
3	32.06	38.53	3	34.86	41.69	3	37.50	44.61
2	32.12	38.60	2	34.90	41.74	2	37.56	44.67
1	32.19	38.68	1	34.95	41.79	1	37.61	44.73
0	32.25	38.75	0	35.00	41.84	0	37.67	44.79
0.9539	**32.31**	**38.82**	**0.9489**	**35.05**	**41.90**	**0.9439**	**37.72**	**44.86**
8	32.37	38.89	8	35.10	41.95	8	37.78	44.92
7	32.44	38.96	7	35.15	42.01	7	37.83	44.98
6	32.50	39.04	6	35.20	42.06	6	37.89	45.04
5	32.56	39.11	5	35.25	42.12	5	37.94	45.10
4	32.62	39.18	4	35.30	42.17	4	38.00	45.16
3	32.69	39.25	3	35.35	42.23	3	38.06	45.22
2	32.75	39.32	2	35.40	42.29	2	38.11	45.28
1	32.81	39.40	1	35.45	42.34	1	38.17	45.34
0	32.87	39.47	0	35.50	42.40	0	38.22	45.41

ALCOHOL.—*Continued.*

Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.
0.9429	**38.28**	**45.47**	**0.9379**	**40.85**	**48.26**	**0.9329**	**43.29**	**50.87**
8	38.33	45.53	8	40.90	48.32	8	43.33	50.92
7	38.39	45.59	7	40.95	48.37	7	43.39	50.97
6	38.44	45.65	6	41.00	48.43	6	43.43	51.02
5	38.50	45.71	5	41.05	48.48	5	43.48	51.07
4	38.56	45.77	4	41.10	48.54	4	43.52	51.12
3	38.61	45.83	3	41.15	48.59	3	43.57	51.17
2	38.67	45.89	2	41.20	48.64	2	43.62	51.22
1	38.72	45.95	1	41.25	48.70	1	43.67	51.27
0	38.78	46.02	0	41.30	48.75	0	43.71	51.32
0.9419	**38.83**	**46.08**	**0.9369**	**41.35**	**48.80**	**0.9319**	**43.76**	**51.38**
8	38.89	46.14	8	41.40	48.86	8	43.81	51.43
7	38.94	46.20	7	41.45	48.91	7	43.86	51.48
6	39.00	46.26	6	41.50	48.97	6	43.90	51.53
5	39.05	46.32	5	41.55	49.02	5	43.95	51.58
4	39.10	46.37	4	41.60	49.07	4	44.00	51.63
3	39.15	46.42	3	41.65	49.13	3	44.05	51.68
2	39.20	46.48	2	41.70	49.18	2	44.09	51.72
1	39.25	46.53	1	41.75	49.23	1	44.14	51.77
0	39.30	46.59	0	41.80	49.29	0	44.18	51.82
0.9409	**39.35**	**46.64**	**0.9359**	**41.85**	**49.34**	**0.9309**	**44.23**	**51.87**
8	39.40	46.70	8	41.90	49.40	8	44.27	51.91
7	39.45	46.75	7	41.95	49.45	7	44.32	51.96
6	39.50	46.80	6	42.00	49.50	6	44.36	52.01
5	39.55	46.86	5	42.05	49.55	5	44.41	52.06
4	39.60	46.91	4	42.10	49.61	4	44.46	52.10
3	39.65	46.97	3	42.14	49.66	3	44.50	52.15
2	39.70	47.02	2	42.19	49.71	2	44.55	52.20
1	39.75	47.08	1	42.24	49.76	1	44.59	52.25
0	39.80	47.13	0	42.29	49.81	0	44.64	52.29
0.9399	**39.85**	**47.18**	**0.9349**	**42.33**	**49.86**	**0.9299**	**44.68**	**52.34**
8	39.90	47.24	8	42.38	49.91	8	44.73	52.39
7	39.95	47.29	7	42.43	49.96	7	44.77	52.44
6	40.00	47.35	6	42.48	50.01	6	44.82	52.48
5	40.05	47.40	5	42.52	50.06	5	44.86	52.53
4	40.10	47.45	4	42.57	50.11	4	44.91	52.58
3	40.15	47.51	3	42.62	50.16	3	44.96	52.63
2	40.20	47.56	2	42.67	50.21	2	45.00	52.68
1	40.25	47.62	1	42.71	50.26	1	45.05	52.72
0	40.30	47.67	0	42.76	50.31	0	45.09	52.77
0.9389	**40.35**	**47.72**	**0.9339**	**42.81**	**50.37**	**0.9289**	**45.14**	**52.82**
8	40.40	47.78	8	42.86	50.42	8	45.18	52.87
7	40.45	47.83	7	42.90	50.47	7	45.23	52.91
6	40.50	47.89	6	42.95	50.52	6	45.27	52.96
5	40.55	47.94	5	43.00	50.57	5	45.32	53.01
4	40.60	47.99	4	43.05	50.62	4	45.36	53.06
3	40.65	48.05	3	43.10	50.67	3	45.41	53.10
2	40.70	48.10	2	43.14	50.72	2	45.46	53.15
1	40.75	48.16	1	43.19	50.77	1	45.50	53.20
0	40.80	48.21	0	43.24	50.82	0	45.55	53.24

ALCOHOL.—*Continued.*

Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.
0.9279	**45.59**	**53.29**	**0.9229**	**47.86**	**55.65**	**0.9179**	**50.13**	**57.97**
8	45.64	53.34	8	47.91	55.69	8	50.17	58.01
7	45.68	53.39	7	47.96	55.74	7	50.22	58.06
6	45.73	53.43	6	48.00	55.79	6	50.26	58.10
5	45.77	53.48	5	48.05	55.83	5	50.30	58.14
4	45.82	53.53	4	48.09	55.88	4	50.35	58.19
3	45.86	53.58	3	48.14	55.93	3	50.39	58.23
2	45.91	53.62	2	48.18	55.97	2	50.43	58.28
1	45.96	53.67	1	48.23	56.02	1	50.48	58.32
0	46.00	53.72	0	48.27	56.07	0	50.52	58.36
0.9269	**46.05**	**53.77**	**0.9219**	**48.32**	**56.11**	**0.9169**	**50.57**	**58.41**
8	46.09	53.81	8	48.36	56.16	8	50.61	58.45
7	46.14	53.86	7	48.41	56 21	7	50.65	58.50
6	46.18	53.91	6	48.46	56.25	6	50.70	58.54
5	46.23	53.95	5	48.50	56.30	5	50.74	58.58
4	46.27	54.00	4	48.55	56.35	4	50.78	58.63
3	46.32	54.05	3	48.59	56.40	3	50.83	58.67
2	46.36	54.10	2	48.64	56.44	2	50.87	58.72
1	46.41	54.14	1	48.68	56.49	1	50.91	58.76
0	46.46	54.19	0	48.73	56.54	0	50.96	58.80
0.9259	**46.50**	**54.24**	**0.9209**	**48.77**	**56.58**	**0.9159**	**51.00**	**58.85**
8	46.55	54 29	8	48.82	56.63	8	51.04	58.89
7	46.59	54.33	7	48.86	56.68	7	51.08	58.93
6	46.64	54.38	6	48.91	56.72	6	51.13	58.97
5	46.68	54.43	5	48.96	56.77	5	51.17	59.01
4	46.73	54.47	4	49.00	56.82	4	51.21	59.05
3	46.77	54.52	3	49.04	56.86	3	51.25	59.09
2	46.82	54.57	2	49.08	56.90	2	51.29	59.14
1	46.86	54.62	1	49.12	56.94	1	51.33	59.18
0	46.91	54.66	0	49.16	56.98	0	51.38	59.22
0.9249	**46.96**	**54.71**	**0.9199**	**49.20**	**57.02**	**0.9149**	**51.42**	**59.26**
8	47.00	54.76	**PROOF. 8**	**49.24**	**57.06**	8	51.46	59.30
7	47.05	54.80	7	49.29	57.10	7	51.50	59.34
6	47.09	54.85	6	49.34	57.15	6	51.54	59.39
5	47.14	54.90	5	49.39	57.20	5	51.58	59.43
4	47.18	54.95	4	49.44	57.25	4	51.63	59.47
3	47.23	54.99	3	49.49	57.30	3	51.67	59.51
2	47.27	55.04	2	49.54	57.35	2	51.71	59.55
1	47.32	55.09	1	49.59	57.40	1	51.75	59.59
0	47.36	55.13	0	49.64	57.45	0	51.79	59.63
0.9239	**47.41**	**55.18**	**0.9189**	**49.68**	**57.49**	**0.9139**	**51.83**	**59.68**
8	47.46	55.23	8	49.73	57.54	8	51.88	59.72
7	47.50	55.27	7	49.77	57.59	7	51.92	59.76
6	47.55	55.32	6	49.82	57.64	6	51.96	59.80
5	47.59	55.37	5	49.86	57.69	5	52.00	59.84
4	47.64	55.41	4	49.91	57.74	4	52.05	59.89
3	47.68	55.46	3	49.95	57.79	3	52.09	59.93
2	47.73	55.51	2	50.00	57.84	2	52.14	59.98
1	47.77	55.55	1	50.04	57.88	1	52.18	60.02
0	47.82	55.60	0	50.09	58.92	0	52.23	60.07

ALCOHOL.—*Continued.*

Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.
0.9129	**52.27**	**60.12**	**0.9079**	**54.52**	**62.36**	**0.9029**	**56.82**	**64.63**
8	52.32	60.16	8	54.57	62.41	8	56.86	64.67
7	52.36	60.21	7	54.62	62.45	7	56.91	64.71
6	52.41	60.25	6	54.67	62.50	6	56.95	64.76
5	52.45	60.30	5	54.71	62.55	5	57.00	64.80
4	52.50	60.34	4	54.76	62.60	4	57.04	64.85
3	52.55	60.39	3	54.81	62.65	3	57.08	64.89
2	52.59	60.44	2	54.86	62.69	2	57.13	64.93
1	52.64	60.47	1	54.90	62.74	1	57.17	64.97
0	52.68	60.52	0	54.95	62.79	0	57.21	65.01
0.9119	**52.73**	**60.56**	**0.9069**	**55.00**	**62.84**	**0.9019**	**57.25**	**65.05**
8	52.77	60.61	8	55.05	62.88	8	57.29	65.09
7	52.82	60.65	7	55.09	62.93	7	57.33	65.13
6	52.86	60.70	6	55.14	62.97	6	57.38	65.17
5	52.91	60.74	5	55.18	63.02	5	57.42	65.21
4	52.95	60.79	4	55.23	63.06	4	57.46	65.25
3	53.00	60.85	3	55.27	63.11	3	57.50	65.29
2	53.04	60.89	2	55.32	63.15	2	57.54	65.33
1	53.09	60.93	1	55.36	63.20	1	57.58	65.37
0	53.13	60.97	0	55.41	63.24	0	57.63	65.41
0.9109	**53.17**	**61.02**	**0.9059**	**55.45**	**63.28**	**0.9009**	**57.67**	**65.45**
8	53.22	61.06	8	55.50	63.33	8	57.71	65.49
7	53.26	61.10	7	55.55	63.37	7	57.75	65.53
6	53.30	61.15	6	55.59	63.42	6	57.79	65.57
5	53.35	61.19	5	55.64	63.46	5	57.83	65.61
4	53.39	61.23	4	55.68	63.51	4	57.88	65.65
3	53.43	61.28	3	55.73	63.55	3	57.92	65.69
2	53.48	61.32	2	55.77	63.60	2	57.96	65.73
1	53.52	61.36	1	55.82	63.64	1	58.00	65.77
0	53.57	61.40	0	55.86	63.69	0	58.05	65.81
0.9099	**53.61**	**61.45**	**0.9049**	**55.91**	**63.73**	**0.8999**	**58.09**	**65.85**
8	53.65	61.49	8	55.95	63.78	8	58.14	65.90
7	53.70	61.53	7	56.00	63.82	7	58.18	65.94
6	53.74	61.58	6	56.05	63.87	6	58.23	65.99
5	53.78	61.62	5	56.09	63.91	5	58.27	66.03
4	53.83	61.66	4	56.14	63.96	4	58.32	66.07
3	53.87	61.71	3	56.18	64.00	3	58.36	66.12
2	53.91	61.75	2	56.23	64.05	2	58.41	66.16
1	53.96	61.79	1	56.27	64.09	1	58.45	66.21
0	54.00	61.84	0	56.32	64.14	0	58.50	66.25
0.9089	**54.05**	**61.88**	**0.9039**	**56.36**	**64.18**	**0.8989**	**58.55**	**66.29**
8	54.10	61.93	8	56.41	64.22	8	58.59	66.34
7	54.14	61.98	7	56.45	64.27	7	58.64	66.38
6	54.19	62.03	6	56.50	64.31	6	58.68	66.43
5	54.24	62.07	5	56.55	64.36	5	58.73	66.47
4	54.29	62.12	4	53.59	64.40	4	58.77	66.51
3	54.33	62.17	3	56.64	64.45	3	58.82	66.56
2	54.38	62.22	2	56.68	64.49	2	58.86	66.60
1	54.43	62.26	1	56.73	64.54	1	58.91	66.65
0	54.48	62.31	0	56.77	64.58	0	58.95	66.69

ALCOHOL.—*Continued.*

Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.
0.8979	**59.00**	**66.74**
8	59.04	66.78
7	59.09	66.82
6	59.13	66.86
5	59.17	66.90
4	59.22	66.94
3	59.26	66.99
2	59.30	67.03
1	59.35	67.07
0	59.39	67.11
0.8969	**59.43**	**67.15**
8	59.48	67.19
7	59.52	67.24
6	59.57	67.28
5	59.61	67.32
4	59.65	67.36
3	59.70	67.40
2	59.74	67.44
1	59.78	67.49
0	59.83	67.53
0.8959	**59.87**	**67.57**
8	59.91	67.61
7	59.96	67.65
6	60.00	67.69
5	60.04	67.73
4	60.08	67.77
3	60.13	67.81
2	60.17	67.85
1	60.21	67.89
0	60.26	67.93
0.8949	**60.29**	**67.97**
8	60.33	68.01
7	60.38	68.05
6	60.42	68.09
5	60.46	68.13
4	60.50	68.17
3	60.54	68.21
2	60.58	68.25
1	60.63	68.29
0	60.67	68.33
0.8939	**60.71**	**68.36**
8	60.76	68.40
7	60.79	68.44
6	60.83	68.48
5	60.88	68.52
4	60.92	68.56
3	60.96	68.60
2	61.00	68.64
1	61.04	68.68
0	61.08	68.72
0.8929	**61.13**	**68.76**
8	61.17	68.80
7	61.21	68.83
6	61.25	68.87
5	61.29	68.91
4	61.33	68.95
3	61.38	68.99
2	61.42	69.03
1	61.46	69.07
0	61.50	69.11
0.8919	**61.54**	**69.15**
8	61.58	69.19
7	61.63	69.22
6	61.67	69.26
5	61.71	69.30
4	61.75	69.34
3	61.79	69.38
2	61.83	69.42
1	61.88	69.46
0	61.92	69.50
0.8909	**61.96**	**69.54**
8	62.00	69.58
7	62.05	69.62
6	62.09	69.66
5	62.14	69.71
4	62.18	69.75
3	62.23	69.79
2	62.27	69.84
1	62.32	69.88
0	62.36	69.92
0.8899	**62.41**	**69.96**
8	62.45	70.01
7	62.50	70.05
6	62.55	70.09
5	62.59	70.14
4	62.64	70.18
3	62.68	70.22
2	62.73	70.27
1	62.77	70.31
0	62.82	70.35
0.8889	**62.86**	**70.40**
8	62.91	70.44
7	62.95	70.48
6	63.00	70.52
5	63.04	70.57
4	63.09	70.61
3	63.13	70.65
2	63.17	70.69
1	63.22	70.73
0	63.26	70.77
0.8879	**63.30**	**70.81**
8	63.35	70.85
7	63.39	70.89
6	63.43	70.93
5	63.48	70.97
4	63.52	71.01
3	63.57	71.05
2	63.61	71.09
1	63.65	71.13
0	63.70	71.17
0.8869	**63.74**	**71.22**
8	63.78	71.26
7	63.83	71.30
6	63.87	71.34
5	63.91	71.38
4	63.96	71.42
3	64.00	71.46
2	64.04	71.50
1	64.09	71.54
0	64.13	71.58
0.8859	**64.17**	**71.62**
8	64.22	71.66
7	64.26	71.70
6	64.30	71.74
5	64.35	71.78
4	64.39	71.82
3	64.43	71.86
2	64.48	71.90
1	64.52	71.94
0	64.57	71.98
0.8849	**64.61**	**72.02**
8	64.65	72.06
7	64.70	72.10
6	64.74	72.14
5	64.78	72.18
4	64.83	72.22
3	64.87	72.26
2	64.91	72.30
1	64.96	72.34
0	65.00	72.38
0.8839	**65.04**	**72.42**
8	65.08	72.46
7	65.13	72.50
6	65.17	72.54
5	65.21	72.58
4	65.25	72.61
3	65.29	72.65
2	65.33	72.69
1	65.38	72.73
0	65.42	72.77

ALCOHOL.—*Continued.*

Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.
0.8829	**65.46**	**72.80**	**0.8779**	**67.58**	**74.74**	**0.8729**	**69.67**	**76.61**
8	65.50	72.84	8	67.63	74.78	8	69.71	76.65
7	65.54	72.88	7	67.67	74.82	7	69.75	76.68
6	65.58	72.92	6	67.71	74.86	6	69.79	76.72
5	65.63	72.96	5	67.75	74.89	5	69.83	76.76
4	65.67	72.99	4	67.79	74.93	4	69.88	76.80
3	65.71	73.03	3	67.83	74.97	3	69.92	76.83
2	65.75	73.07	2	67.88	75.01	2	69.96	76.87
1	65.79	73.11	1	67.92	75.04	1	70.00	76.91
0	65.83	73.15	0	67.96	75.08	0	70.04	76.94
0.8819	**65.88**	**73.19**	**0.8769**	**68.00**	**75.12**	**0.8719**	**70.08**	**76.98**
8	65.92	73.22	8	68.04	75.16	8	70.12	77.01
7	65.96	73.26	7	68.08	75.19	7	70.16	77.05
6	66.00	73.30	6	68.13	75.23	6	70.20	77.08
5	66.04	73.34	5	68.17	75.27	5	70.24	77.12
4	66.09	73.38	4	68.21	75.30	4	70.28	77.15
3	66.13	73.42	3	68.25	75.34	3	70.32	77.19
2	66.17	73.46	2	68.29	75.38	2	70.36	77.22
1	66.22	73.50	1	68.33	75.42	1	70.40	77.25
0	66.26	73.54	0	68.38	75.45	0	70.44	77.29
0.8809	**66.30**	**73.57**	**0.8759**	**68.42**	**75.49**	**0.8709**	**70.48**	**77.32**
8	66.35	73.61	8	68.46	75.53	8	70.52	77.36
7	66.39	73.65	7	68.50	75.57	7	70.56	77.39
6	66.43	73.69	6	68.54	75.60	6	70.60	77.43
5	66.48	73.73	5	68.58	75.64	5	70.64	77.46
4	66.52	73.77	4	68.63	75.68	4	70.68	77.50
3	66.57	73.81	3	68.67	75.72	3	70.72	77.53
2	66.61	73.85	2	68.71	75.75	2	70.76	77.57
1	66.65	73.89	1	68.75	75.79	1	70.80	77.60
0	66.70	73.93	0	68.79	75.83	0	70.84	77.64
0.8799	**66.74**	**73.97**	**0.8749**	**68.83**	**75.87**	**0.8699**	**70.88**	**77.67**
8	66.78	74.01	8	68.88	75.90	8	70.92	77.71
7	66.83	74.05	7	68.92	75.94	7	70.96	77.74
6	66.87	74.09	6	68.96	75.98	6	71.00	77.78
5	66.91	74.13	5	69.00	76.01	5	71.04	77.82
4	66.96	74.17	4	69.04	76.05	4	71.08	77.85
3	67.00	74.22	3	69.08	76.09	3	71.13	77.89
2	67.04	74.25	2	69.13	76.13	2	71.17	77.93
1	67.08	74.29	1	69.17	76.16	1	71.21	77.96
0	67.13	74.33	0	69.21	76.20	0	71.25	78.00
0.8789	**67.17**	**74.37**	**0.8739**	**69.25**	**76.24**	**0.8689**	**71.29**	**78.04**
8	67.21	74.40	8	69.29	76.27	8	71.33	78.07
7	67.25	74.44	7	69.33	76.31	7	71.38	78.11
6	67.29	74.48	6	69.38	76.35	6	71.42	78.14
5	67.33	74.52	5	69.42	76.39	5	71.46	78.18
4	67.38	74.55	4	69.46	76.42	4	71.50	78.22
3	67.42	74.59	3	69.50	76.46	3	71.54	78.25
2	67.46	74.63	2	69.54	76.50	2	71.58	78.29
1	67.50	74.67	1	69.58	76.53	1	71.63	78.33
0	67.54	74.70	0	69.63	76.57	0	71.67	78.36

ALCOHOL.—*Continued.*

Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight: per cent.	Absolute Alcohol by volume: per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight: per cent.	Absolute Alcohol by volume: per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight: per cent.	Absolute Alcohol by volume: per cent.
0.8679	**71.71**	**78 40**	**0.8629**	**73.83**	**80.26**	**0.8579**	**76.08**	**82.23**
8	71.75	78.44	8	73.88	80.30	8	76.13	82 26
7	71.79	78.47	7	73.92	80.33	7	76.17	82.30
6	71.83	78.51	6	73.96	80.37	6	76.21	82.33
5	71.88	78.55	5	74.00	80.40	5	76.25	82.37
4	71.92	78.58	4	74.05	80.44	4	76.29	82.40
3	71.96	78.62	3	74.09	80.48	3	76.33	82.44
2	72.00	78.66	2	74.14	80.52	2	76.38	82.47
1	72.04	78.70	1	74.18	80.56	1	76.42	82.51
0	72.09	78.73	0	74.23	80.60	0	76.46	82.54
0.8669	**72.13**	**78.77**	**0.8619**	**74.27**	**80.64**	**0.8569**	**76.50**	**82.58**
8	72.17	78.81	8	74.32	80.68	8	76.54	82.61
7	72.22	78.85	7	74.36	80.72	7	76.58	82.65
6	72.26	78.89	6	74.41	80.76	6	76.63	82.69
5	72.30	78.93	5	74.45	80.80	5	76.67	82.72
4	72.35	78.96	4	74.50	80.84	4	76.71	82.76
3	72.39	79.00	3	74.55	80.88	3	76.75	82.79
2	72.43	79.04	2	74.59	80.92	2	76.79	82.83
1	72.48	79.08	1	74.64	80.96	1	76.83	82.86
0	72.52	79.12	0	74.68	81.00	0	76.88	82.90
0.8659	**72.57**	**79.16**	**0.8609**	**74.73**	**81.04**	**0.8559**	**76.92**	**82.93**
8	72.61	79.19	8	74.77	81.08	8	76.96	82.97
7	72.65	79.23	7	74.82	81.12	7	77.00	83.00
6	72.70	79.27	6	74.86	81.16	6	77.04	83.04
5	72.74	79.31	5	74.91	81.20	5	77.08	83.07
4	72.78	79.35	4	74.95	81.24	4	77.13	83.11
3	72.83	79.39	3	75.00	81.28	3	77.17	83.14
2	72.87	79.42	2	75.05	81.32	2	77.21	83.18
1	72.91	79.46	1	75.09	81.36	1	77.25	83.21
0	72.96	79.50	0	75.14	81.40	0	77.29	83.25
0.8649	**73.00**	**79.54**	**0.8599**	**75.18**	**81.44**	**0.8549**	**77.33**	**83.28**
8	73.04	79.57	8	75.23	81.48	8	77.38	83.32
7	73.08	79.61	7	75.27	81.52	7	77.42	83.36
6	73.13	79.65	6	75.32	81.56	6	77.46	83.39
5	73.17	79.68	5	75.36	81.60	5	77.50	83.43
4	73 21	79.72	4	75.41	81.64	4	77.54	83.46
3	73.25	79.75	3	75.45	81.68	3	77.58	83.50
2	73.29	79.79	2	75.50	81.72	2	77.63	83.53
1	73.33	79.83	1	75.55	81.76	1	77.67	83.57
0	73.38	79.86	0	75.59	81.80	0	77.71	83.60
0.8639	**73.42**	**79.90**	**0.8589.**	**75.64**	**81 84**	**0.8539**	**77.75**	**83.64**
8	73.46	79.94	8	75.68	81.88	8	77.79	83.67
7	73.50	79.97	7	75.73	81.92	7	77.83	83.71
6	73.54	80 01	6	75.77	81.96	6	77.88	83.74
5	73.58	80.04	5	75.82	82.00	5	77.92	83.78
4	73.63	8 .08	4	75.86	82.04	4	77.96	83.81
3	73.67	80.12	3	75.91	82.08	3	78.00	83.85
2	73.71	80.15	2	75.95	82.12	2	78.04	83.88
1	73.75	80.19	1	76.00	82.16	1	78.08	83.91
0	73.79	80.22	0	76.04	82.19	0	78.12	83.94

ALCOHOL.—*Continued.*

Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.
0.8529	**78.16**	**83.98**	**0.8479**	**80.17**	**85.63**	**0.8429**	**82.19**	**87.27**
8	78.20	84.01	8	80.21	85.66	8	82.23	87.30
7	78.24	84.04	7	80.25	85.70	7	82.27	87.34
6	78.28	84.08	6	80.29	85.73	6	82.31	87.37
5	78.32	84.11	5	80.33	85.77	5	82.35	87.40
4	78.36	84.14	4	80.38	85.80	4	82.38	87.43
3	78.40	84.18	3	80.42	85.84	3	82.42	87.46
2	78.44	84.21	2	80.46	85.87	2	82.46	87.49
1	78.48	84.24	1	80.50	85.90	1	82.50	87.52
0	78.52	84.27	0	80.54	85.94	0	82.54	87.55
0.8519	**78.56**	**84.31**	**0.8469**	**80.58**	**85.97**	**0.8419**	**82.58**	**87.58**
8	78.60	84.34	8	80.63	86.01	8	82.62	87.61
7	78.64	84.37	7	80.67	86.04	7	82.65	87.64
6	78.68	84.41	6	80.71	86.08	6	82.69	87.67
5	78.72	84.44	5	80.75	86.11	5	82.73	87.70
4	78.76	84.47	4	80.79	86.15	4	82.77	87.73
3	78.80	84.51	3	80.83	86.18	3	82.81	87.76
2	78.84	84.54	2	80.88	86.22	2	82.85	87.79
1	78.88	84.57	1	80.92	86.25	1	82.88	87.82
0	78.92	84.60	0	80.96	86.28	0	82.92	87.85
0.8509	**78.96**	**84.64**	**0.8459**	**81.00**	**86.32**	**0.8409**	**82.96**	**87.88**
8	79.00	84.67	8	81.04	86.35	8	83.00	87.91
7	79.04	84.70	7	81.08	86.38	7	83.04	87.94
6	79.08	84.74	6	81.12	86.42	6	83.08	87.97
5	79.12	84.77	5	81.16	86.45	5	83.12	88.00
4	79.16	84.80	4	81.20	86.48	4	83.15	88.03
3	79.20	84.83	3	81.24	86.51	3	83.19	88.06
2	79.24	84.87	2	81.28	86.54	2	83.23	88.09
1	79.28	84.90	1	81.32	86.58	1	83.27	88.13
0	79.32	84.93	0	81.36	86.61	0	83.31	88.16
0.8499	**79.36**	**84.97**	**0.8449**	**81.40**	**86.64**	**0.8399**	**83.35**	**88.19**
8	79.40	85.00	8	81.44	86.67	8	83.38	88.22
7	79.44	85.03	7	81.48	86.71	7	83.42	88.25
6	79.48	85.06	6	81.52	86.74	6	83.46	88.28
5	79.52	85.10	5	81.56	86.77	5	83.50	88.31
4	79.56	85.13	4	81.60	86.80	4	83.54	88.34
3	79.60	85.16	3	81.64	86.83	3	83.58	88.37
2	79.64	85.19	2	81.68	86.87	2	83.62	88.40
1	79.68	85.23	1	81.72	86.90	1	83.65	88.43
0	79.72	85.26	0	81.76	86.93	0	83.69	88.46
0.8489	**79.76**	**85.29**	**0.8439**	**81.80**	**86.96**	**0.8389**	**83.73**	**88.49**
8	79.80	85 33	8	81.84	86.99	8	83.77	88.52
7	79.84	85.36	7	81.88	87.03	7	83.81	88.55
6	79.88	85.39	6	81.92	87.06	6	83.85	88.58
5	79.92	85.42	5	81.96	87.09	5	83.88	88.61
4	79.96	85.46	4	82.00	87.12	4	83.92	88.64
3	80.00	85.49	3	82.04	87.15	3	83.96	88.67
2	80.04	85.53	2	82.08	87.18	2	84.00	88.70
1	80.08	85.56	1	82.12	87.21	1	84.04	88.73
0	80.13	85.59	0	82.15	87.24	0	84.08	88.76

ALCOHOL.—*Continued.*

Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.
0.8379	**84.12**	**88.79**	**0.8329**	**86.08**	**90.32**	**08.279**	**88.00**	**91.78**
8	84.16	88.83	8	86.12	90.35	8	88.04	91.81
7	84.20	88.86	7	86.15	90.38	7	88.08	91.84
6	84.24	88.89	6	86.19	90.40	6	88.12	91.87
5	84.28	88.92	5	86.23	90.43	5	88.16	91.90
4	84.32	88.95	4	86.27	90.46	4	88.20	91.93
3	84.36	88.98	3	86.31	90.49	3	88.24	91.96
2	84.40	89.01	2	86.35	90.52	2	88.28	91.99
1	84.44	89.05	1	86.38	90.55	1	88.32	92.02
0	84.48	89.08	0	86.42	90.58	0	88.36	92.05
0.8369	**84.52**	**89.11**	**0.8319**	**86.46**	**90.61**	**0.8269**	**88.40**	**92.08**
8	84.56	89.14	8	86.50	90.64	8	88.44	92.12
7	84.60	89.17	7	86.54	90.67	7	88.48	92.15
6	84.64	89.20	6	86.58	90.70	6	88.52	92.18
5	84.68	89.24	5	86.62	90.73	5	88.56	92.21
4	84.72	89.27	4	86.65	90.76	4	88.60	92.24
3	84.76	89.30	3	86.69	90.79	3	88.64	92.27
2	84.80	89.33	2	86.73	90.82	2	88.68	92.30
1	84.84	89.36	1	86.77	90.85	1	88.72	92.33
0	84.88	89.39	0	86.81	90.88	0	88.76	92.36
0.8359	**84.92**	**89.42**	**0.8309**	**86.85**	**90.90**	**0.8259**	**88.80**	**92.39**
8	84.96	89.46	8	86.88	90.93	8	88.84	92.42
7	85.00	89.49	7	86.92	90.96	7	88.88	92.45
6	85.04	89.52	6	86.96	90.99	6	88.92	92.48
5	85.08	89.55	5	87.00	91.02	5	88.96	92.51
4	85.12	89.58	4	87.04	91.05	4	89.00	92.54
3	85.15	89.61	3	87.08	91.08	3	89.04	92.57
2	85.19	88.64	2	87.12	91.11	2	89.08	92.60
1	85.23	89.67	1	87.15	91.14	1	89.12	92.63
0	85.27	89.70	0	87.19	91.17	0	89.16	92.66
0.8349	**85.31**	**89.72**	**0.8299**	**87.23**	**91.20**	**0.8249**	**89.19**	**92.68**
8	85.35	89.75	8	87.27	91.23	8	89.23	92.71
7	85.38	89.78	7	87.31	91.25	7	89.27	92.74
6	85.42	89.81	6	87.35	91.28	6	89.31	92.77
5	85.46	89.84	5	87.38	91.31	5	89.35	92.80
4	85.50	89.87	4	87.42	91.34	4	89.38	92.83
3	85.54	89.90	3	87.46	91.37	3	89.42	92.86
2	85.58	89.93	2	87.50	91.40	2	89.46	92.89
1	85.62	89.96	1	87.54	91.43	1	89.50	92.91
0	85.65	89.99	0	87.58	91.46	0	89.54	92.94
0.8339	**85.69**	**90.02**	**0.8289**	**87.62**	**91.49**	**0.8239**	**89.58**	**92.97**
8	85.73	90.05	8	87.65	91.52	8	89.62	93.00
7	85.77	90.08	7	87.69	91.55	7	89.65	93.03
6	85.81	90.11	6	87.73	91.57	6	89.69	93.06
5	85.85	90.14	5	87.77	91.60	5	89.73	93.09
4	85.88	90.17	4	87.81	91.63	4	89.77	93.11
3	85.92	90.20	3	87.85	91.66	3	89.81	93.14
2	85.96	90.23	2	87.88	91.69	2	89.85	93.17
1	86.00	90.26	1	87.92	91.72	1	89.88	93.20
0	86.04	90.29	0	87.96	91.75	0	89.92	93.23

ALCOHOL.—*Continued.*

Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.
0.8229	**89.96**	**93.26**	**0.8179**	**91.75**	**94.53**	**0.8129**	**93.59**	**95.84**
8	90.00	93.29	8	91.79	94.56	8	93.63	95.87
7	90.04	93.31	7	91.82	94.59	7	93.67	95.90
6	90.07	93.34	6	91.86	94.61	6	93.70	95.92
5	90.11	93.36	5	91.89	94.64	5	93.74	95.95
4	90.14	93.39	4	91.93	94.66	4	93.78	95.97
3	90.18	93.41	3	91.96	94.69	3	93.81	96.00
2	90.21	93.44	2	92.00	94.71	2	93.85	96.03
1	90.25	93.47	1	92.04	94.74	1	93.89	96.05
0	90.29	93.49	0	92.07	94.76	0	93.92	96.08
0.8219	**90.32**	**93.52**	**0.8169**	**92.11**	**94.79**	**0.8119**	**93.96**	**96.11**
8	90.36	93.54	8	92.15	94.82	8	94.00	96.13
7	90.39	93.57	7	92.18	94.84	7	94.03	96.16
6	90.43	93.59	6	92.22	94.87	6	94.07	96.18
5	90.46	83.62	5	92.26	94.90	5	94.10	96.20
4	90.50	93.64	4	92.30	94.92	4	94.14	96.22
3	90.54	93.67	3	92.33	94.95	3	94.17	96.25
2	90.57	93.70	2	92.37	94.98	2	94.21	96.27
1	90.61	93.72	1	92.41	94.00	1	94.24	96.29
0	90.64	93.75	0	92.44	95.03	0	94.28	96.32
0.8209	**90.68**	**93.77**	**0.8159**	**92.48**	**95.06**	**0.8109**	**94.31**	**96.34**
8	90.71	93.80	8	92.52	95.08	8	94.34	96.36
7	90.75	93.82	7	92.55	95.11	7	94.38	96.39
6	90.79	93.85	6	92.59	95.13	6	94.41	96.41
5	90.82	93.87	5	92.63	95.16	5	94.45	96.43
4	90.86	93.90	4	92.67	95.19	4	94.48	96.46
3	90.89	93.93	3	92.70	95.21	3	94.52	96.48
2	90.93	93.95	2	62.74	95.24	2	94.55	96.50
1	90.96	93.98	1	92.78	95.27	1	94.59	96.53
0	91.00	94.00	0	92.81	95.29	0	94.62	96.55
0.8199	**91.04**	**94.03**	**0.8149**	**92.85**	**95.32**	**0.8099**	**94.65**	**96.57**
8	91.07	94.05	8	92.89	95.35	8	94.69	96.60
7	91.11	94.08	7	92.92	95.37	7	94.73	96.62
6	91.14	94.10	6	92.96	95.40	6	94.76	96.64
5	91.18	94.13	5	93.00	95.42	5	94.80	96.67
4	91.21	94.15	4	93.04	95.45	4	94.83	96.69
3	91.25	94.18	3	93.07	95.48	3	94.86	96.71
2	91.29	94.21	2	93.11	95.50	2	94.90	96.74
1	91.32	94.23	1	93.15	95.53	1	94.93	96.76
0	91.36	94.26	0	93.18	95.55	0	94.97	96.78
0.8189	**91.39**	**94.28**	**0.8139**	**93.22**	**95.58**	**0.8089**	**95.00**	**96.80**
8	91.43	94.31	8	93.26	95.61	8	95.04	96.83
7	91.46	94.33	7	93.30	95.63	7	95.07	96.85
6	91.50	94.36	6	93.33	95.66	6	95.11	96.88
5	91.54	94.38	5	93.37	95.69	5	95.14	96.90
4	91.57	94.41	4	93.41	95.71	4	95.18	96.93
3	91.61	94.43	3	93.44	95.74	3	95.21	96.95
2	91.64	94.46	2	93.48	95.76	2	95.25	96.98
1	91.68	94.48	1	93.52	95.79	1	95.29	97.00
0	91.71	94.51	0	93.55	95.82	0	95.32	97.02

ALCOHOL.—*Continued.*

Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.	Sp. Gravity at 15.6° C. (60° F.).	Absolute Alcohol by weight; per cent.	Absolute Alcohol by volume; per cent.
0.8079	**95.36**	**97.05**	**0.8029**	**97.07**	**98.18**	**0.7979**	**98.69**	**99.18**
8	95.39	97.07	8	97.10	98.20	8	98.72	99.20
7	95.43	97.10	7	97.13	98.22	7	98.75	99.22
6	95.46	97.12	6	97.16	98.24	6	98.78	99.24
5	95.50	97.15	5	97.20	98.27	5	98.81	99.26
4	95.54	97.17	4	97.23	98.29	4	98.84	99.27
3	95.57	97.20	3	97.26	98.31	3	98.87	99.29
2	95.61	97.22	2	97.30	98.33	2	98.91	99.31
1	95.64	97.24	1	97.33	98.35	1	98.94	99.33
0	95.68	97.27	0	97.37	98.37	0	98.97	99.35
0.8069	**95.71**	**97.29**	**0.8019**	**97.40**	**98.39**	**0.7969**	**99.00**	**99.37**
8	95.75	97.32	8	97.43	98.42	8	99.03	99.39
7	95.79	97.34	7	97.46	98.44	7	99.06	99.41
6	95.82	97.37	6	97.50	98.46	6	99.10	99.43
5	95.86	97.39	5	97.53	98.48	5	99.13	99.45
4	95.89	97.41	4	97.57	98.50	4	99.16	99.47
3	95.93	97.44	3	97.60	98.52	3	99.19	99.49
2	95.96	97.46	2	97.63	98.54	2	99.23	99.51
1	96.00	97.49	1	97.66	98.56	1	99.26	99.53
0	96.03	97.51	0	97.70	98.59	0	99.29	99.55
0.8059	**96.07**	**97.53**	**0.8009**	**97.73**	**98.61**	**0.7959**	**99.32**	**99.57**
8	96.10	97.55	8	97.76	98.63	8	99.36	99.59
7	96.13	97.57	7	97.80	98.65	7	99.39	99.61
6	96.16	97.60	6	97.83	98.67	6	99.42	99.63
5	96.20	97.62	5	97.87	98.69	5	99.45	99.65
4	96.23	97.64	4	97.90	98.71	4	99.48	99.67
3	96.26	97.66	3	97.93	98.74	3	99.52	99.69
2	96.30	97.68	2	97.96	98.76	2	99.55	99.71
1	96.33	97.70	1	98.00	98.78	1	99.58	99.73
0	96.37	97.73	0	98.03	98.80	0	99.61	99.75
0.8049	**96.40**	**97.75**	**0.7999**	**98.06**	**98.82**	**0.7949**	**99.65**	**99.77**
8	96.43	97.77	8	98.09	98.83	8	99.68	99.80
7	96.46	97.79	7	98.12	98.85	7	99.71	99.82
6	96.50	97.81	6	98.16	98.87	6	99.74	99.84
5	96.53	97.83	5	98.19	98.89	5	99.78	99.86
4	96.57	97.86	4	98.22	98.91	4	99.81	99.88
3	96.60	97.88	3	98.25	98.93	3	99.84	99.90
2	96.63	97.90	2	98.28	98.94	2	99.87	99.92
1	96.66	97.92	1	98.31	98.96	1	99.90	99.94
0	96.70	97.94	0	98.34	98.98	0	99.94	99.96
0.8039	**96.73**	**97.96**	**0.7989**	**98.37**	**99.00**	**0.7939**	**99.97**	**99.98**
8	96.76	97.98	8	98.41	99.02		**Absolute**	**Alcohol.**
7	96.80	98.01	7	98.44	99.04	**0.7938**	**100.00**	**100.00**
6	96.83	98.03	6	98.47	99.05			
5	96.87	98.05	5	98.50	99.07			
4	96.90	98.07	4	98.53	99.09			
3	96.93	98.09	3	98.56	99.11			
2	96.96	98.11	2	98.59	99.13			
1	97.00	98.14	1	98.62	99.15			
0	97.03	98.16	0	98.66	99.16			

ACETIC ACID, according to Oudemans.

Percent. of absolute Acetic Acid.	Specific Gravity			Percent. of absolute Acetic Acid.	Specific Gravity			Percent. of absolute Acetic Acid.	Specific Gravity		
	at 0° C.	at 15° C.	at 40° C.		at 0° C.	at 15° C.	at 40° C.		at 0° C.	at 15° C.	at 40° C.
1	1.0016	1.0007	0.9936	34	1.0547	1.0459	1.0291	67	1.0856	1.0721	1.0488
2	1.0033	1.0022	0.9948	35	1.0560	1.0470	1.0300	68	1.0861	1.0725	1.0491
3	1.0051	1.0037	0.9960	36	1.0573	1.0481	1.0308	69	1.0866	1.0729	1.0493
4	1.0069	1.0052	0.9972	37	1.0585	1.0492	1.0316	70	1.0871	1.0733	1.0495
5	1.0088	1.0067	0.9984	38	1.0598	1.0502	1.0324	71	1.0875	1.0737	1.0497
6	1.0106	1.0083	0.9996	39	1.0610	1.0513	1.0332	72	1.0879	1.0740	1.0498
7	1.0124	1.0098	1.0008	40	1.0622	1.0523	1.0340	73	1.0883	1.0742	1.0499
8	1.0142	1.0113	1.0020	41	1.0634	1.0533	1.0348	74	1.0886	1.0744	1.0500
9	1.0159	1.0127	1.0032	42	1.0646	1.0543	1.0355	75	1.0888	1.0746	1.0501
10	1.0176	1.0142	1.0044	43	1.0657	1.0552	1.0363	76	1.0891	1.0747	1.0501
11	1.0194	1.0157	1.0056	44	1.0668	1.0562	1.0370	77	1.0893	1.0748	1.0501
12	1.0211	1.0171	1.0067	45	1.0679	1.0571	1.0377	78	1.0894	1.0748	1.0500
13	1.0228	1.0185	1.0079	46	1.0690	1.0580	1.0384	79	1.0896	1.0748	1.0499
14	1.0245	1.0200	1.0090	47	1.0700	1.0589	1.0391	80	1.0897	1.0748	1.0497
15	1.0262	1.0214	1.0101	48	1.0710	1.0598	1.0397	81	1.0897	1.0747	1.0495
16	1.0279	1.0228	1.0112	49	1.0720	1.0607	1.0404	82	1.0897	1.0746	1.0492
17	1.0295	1.0242	1.0123	50	1.0730	1.0615	1.0410	83	1.0896	1.0744	1.0489
18	1.0311	1.0256	1.0134	51	1.0740	1.0623	1.0416	84	1.0894	1.0742	1.0485
19	1.0327	1.0270	1.0144	52	1.0749	1.0631	1.0423	85	1.0892	1.0739	1.0481
20	1.0343	1.0284	1.0155	53	1.0758	1.0638	1.0429	86	1.0889	1.0736	1.0475
21	1.0359	1.0298	1.0166	54	1.0767	1.0646	1.0434	87	1.0885	1.0731	1.0469
22	1.0374	1.0311	1.0176	55	1.0775	1.0653	1.0440	88	1.0881	1.0726	1.0462
23	1.0390	1.0324	1.0187	56	1.0783	1.0660	1.0445	89	1.0876	1.0720	1.0455
24	1.0405	1.0337	1.0197	57	1.0791	1.0666	1.0450	90	1.0871	1.0713	1.0447
25	1.0420	1.0350	1.0207	58	1.0798	1.0673	1.0455	91	....	1.0705	1.0438
26	1.0435	1.0363	1.0217	59	1.0806	1.0679	1.0460	92	....	1.0696	1.0428
27	1.0450	1.0375	1.0227	60	1.0813	1.0685	1.0464	93	....	1.0686	1.0416
28	1.0465	1.0388	1.0236	61	1.0820	1.0691	1.0468	94	....	1.0674	1.0403
29	1.0479	1.0400	1.0246	62	1.0826	1.0697	1.0472	95	....	1.0660	1.0388
30	1.0493	1.0412	1.0255	63	1.0832	1.0702	1.0475	96	....	1.0644	1.0370
31	1.0507	1.0424	1.0264	64	1.0838	1.0707	1.0479	97	....	1.0625	1.0350
32	1.0520	1.0436	1.0274	65	1.0845	1.0712	1.0482	98	....	1.0604	1.0327
33	1.0534	1.0447	1.0283	66	1.0851	1.0717	1.0485	99	....	1.0580	1.0301

HYDROBROMIC ACID, according to Biel.

Percent. HBr	Specific Gravity at 15° C. (59° F.)	Percent. HBr	Specific Gravity at 15° C. (59° F.)	Percent. HBr	Specific Gravity at 15° C. (59° F.)	Percent. HBr	Specific Gravity at 15° C. (59° F.)
1	1.0082	14	1.110	27	1.229	40	1.375
2	1.0155	15	1.119	28	1.239	41	1.388
3	1.0230	16	1.127	29	1.249	42	1.401
4	1.0305	17	1.136	30	1.260	43	1.415
5	1.038	18	1.145	31	1.270	44	1.429
6	1.046	19	1.154	32	1.281	45	1.444
7	1.053	20	1.163	33	1.292	46	1.459
8	1.061	21	1.172	34	1.303	47	1.474
9	1.069	22	1.181	35	1.314	48	1.490
10	1.077	23	1.190	36	1.326	49	1.496
11	1.085	24	1.200	37	1.338	50	1.513
12	1.093	25	1.209	38	1.350		
13	1.102	26	1.219	39	1.362		

HYDROCHLORIC ACID, according to Kolb.

Specific Gravity.	100 Parts contain		Specific Gravity.	100 Parts contain		Specific Gravity.	100 Parts contain	
	at 0° C. (32° F.) H Cl	at 15° C. (59° F.) H Cl		at 0° C. (32° F.) H Cl	at 15° C. (59° F.) H Cl		at 0° C. (32° F.) H Cl	at 15° C. (59° F.) H Cl
1.000	0.0	0.1	1.083	15.7	16.5	1.166	31.4	33.0
1.007	1.4	1.5	1.091	17.2	18.1	1.171	32.3	33.9
1.014	2.7	2.9	1.100	18.9	19.9	1.175	33.0	34.7
1.022	4.2	4.5	1.108	20.4	21.5	1.180	34.1	35.7
1.029	5.5	5.8	1.116	21.9	23.1	1.185	35.1	36.8
1.036	6.9	7.3	1.125	23.6	24.8	1.190	36.1	37.9
1.044	8.4	8.9	1.134	25.2	26.6	1.195	37.1	39.0
1.052	9.9	10.4	1.143	27.0	28.4	1.199	38.0	39.8
1.060	11.4	12.0	1.152	28.7	30.2	1.205	39.1	41.2
1.067	12.7	13.4	1.157	29.7	31.2	1.210	40.2	42.4
1.075	14.2	15.0	1.161	30.4	32.0	1.212	41.7	42.9

NITRIC ACID, according to Kolb.

Specific Gravity.	100 Parts contain at 0° C. (32° F.)		100 Parts contain at 15° C. (59° F.)		Specific Gravity.	100 Parts contain at 0° C. (32° F.)		100 Parts contain at 15° C. (59° F.)	
	HNO_3	N_2O_5	HNO_3	N_2O_5		HNO_3	N_2O_5	HNO_3	N_2O_5
1.000	0.0	0.0	0.2	0.1	1.242	36.2	31.0	38.6	33.1
1.007	1.1	0.9	1.5	1.3	1.252	37.7	32.3	40.2	34.5
1.014	1.2	1.9	2.6	2.2	1.261	39.1	33.5	41.5	35.6
1.022	3.4	2.9	4.0	3.4	1.275	41.1	35.2	43.5	37.3
1.029	4.5	3.9	5.1	4.4	1.286	42.6	36.5	45.0	38.6
1.036	5.5	4.7	6.3	5.4	1.298	44.4	38.0	47.1	40.4
1.044	6.7	5.7	7.6	6.5	1.309	46.1	39.5	48.6	41.7
1.052	8.0	6.9	9.0	7.7	1.321	48.0	41.1	50.7	43.5
1.060	9.2	7.9	10.2	8.7	1.334	50.0	42.9	52.9	45.3
1.067	10.2	8.7	11.4	9.8	1.346	51.9	44.5	55.0	47.1
1.075	11.4	9.8	12.7	10.9	1.359	54.0	46.3	57.3	49.1
1.083	12.6	10.8	14.0	12.0	1.372	56.2	48.2	59.6	51.1
1.091	13.8	11.8	15.3	13.1	1.384	58.4	50.0	61.7	52.9
1.100	15.2	13.0	16.8	14.4	1.398	60.8	52.1	64.5	55.3
1.108	16.4	14.0	18.0	15.4	1.412	63.2	54.2	67.5	57.9
1.116	17.6	15.1	19.4	16.6	1.426	66.2	56.7	70.6	60.5
1.125	18.9	16.2	20.8	17.8	1.440	69.0	59.1	74.4	63.8
1.134	20.2	17.3	22.2	19.0	1.454	72.2	61.9	78.4	67.2
1.143	21.6	18.5	23.6	20.2	1.470	76.1	65.2	83.0	71.1
1.152	22.9	19.6	24.9	21.3	1.485	80.2	68.7	87.1	74.7
1.161	24.2	20.7	26.3	22.5	1.501	84.5	72.4	92.6	79.4
1.171	25.7	22.0	27.8	23.8	1.516	88.4	75.8	96.0	82.3
1.180	27.0	23.1	29.2	25.0	1.524	90.5	77.6	98.0	84.0
1.190	28.5	24.4	30.7	26.3	1.530	92.2	79.0	100.0	85.71
1.199	29.8	25.5	32.1	27.5	1.532	92.7	79.5	....	....
1.210	31.4	26.9	33.8	28.9	1.541	95.0	81.4	....	....
1.221	33.1	28.4	35.5	30.4	1.549	97.3	83.4	....	....
1.231	34.6	29.7	37.0	31.7	1.559	100.0	85.71	....	....

SULPHURIC ACID, according to Kolb.

Specific Gravity.	100 Parts contain at 15° C. (59° F.)		1 Litre contains in kilos at 15° C. (59° F.)		Specific Gravity.	100 Parts contain at 15° C. (59° F.)		1 Litre contains in kilos at 15° C. (59° F.)	
	H_2SO_4	SO_3	H_2SO_4	SO_3		H_2SO_4	SO_3	H_2SO_4	SO_3
1.000	0.9	0.7	0.009	0.007	1.308	40.2	32.8	0.526	0.429
1.007	1.9	1.5	0.019	0.015	1.320	41.6	33.9	0.549	0.447
1.014	2.8	2.3	0.028	0.023	1.332	43.0	35.1	0.573	0.468
1.022	3.8	3.1	0.039	0.032	1.345	44.4	36.2	0.597	0.487
1.029	4.8	3.9	0.049	0.040	1.357	45.5	37.2	0.617	0.505
1.037	5.8	4.7	0.060	0.049	1.370	46.9	38.3	0.642	0.525
1.045	6.8	5.6	0.071	0.059	1.383	48.3	39.5	0.668	0.546
1.052	7.8	6.4	0.082	0.067	1.397	49.8	40.7	0.696	0.569
1.069	8.8	7.2	0.093	0.076	1.410	51.2	41.8	0.722	0.589
1.067	9.8	8.0	0.105	0.085	1.424	52.6	42.9	0.749	0.611
1.075	10.8	8.8	0.116	0.095	1.438	54.0	44.1	0.777	0.634
1.083	11.9	9.7	0.129	0.105	1.453	55.4	45.2	0.805	0.657
1.091	13.0	10.6	0.142	0.116	1.468	56.9	46.4	0.835	0.681
1.100	14.1	11.5	0.155	0.126	1.483	58.3	47.6	0.864	0.706
1.108	15.2	12.4	0.168	0.137	1.498	59.6	48.7	0.893	0.730
1.116	16.2	13.2	0.181	0.147	1.514	61.0	49.8	0.923	0.754
1.125	17.3	14.1	0.195	0.159	1.530	62.5	51.0	0.956	0.780
1.134	18.5	15.1	0.210	0.172	1.540	64.0	52.2	0.990	0.807
1.142	19.6	16.0	0.224	0.183	1.563	65.5	63.5	1.024	0.836
1.152	20.8	17.0	0.239	0.196	1.580	67.0	54.9	1.059	0.867
1.162	22.2	18.0	0.258	0.209	1.597	68.6	56.0	1.095	0.894
1.171	23.3	19.0	0.273	0.222	1.615	70.0	57.1	1.131	0.922
1.180	24.5	20.0	0.289	0.236	1.634	71.6	58.4	1.170	0.954
1.190	25.8	21.1	0.307	0.251	1.652	73.2	59.7	1.210	0.986
1.200	27.1	22.1	0.325	0.265	1.671	74.7	61.0	1.248	1.019
1.210	28.4	23.2	0.344	0.281	1.691	76.4	62.4	1.292	1.055
1.220	29.6	24.2	0.361	0.295	1.711	78.1	63.8	1.336	1.092
1.231	31.0	25.3	0.382	0.311	1.732	79.9	65.2	1.384	1.129
1.241	32.2	26.3	0.400	0.326	1.753	81.7	66.7	1.432	1.169
1.252	33.4	27.3	0.418	0.342	1.774	84.1	68.7	1.492	1.219
1.263	34.7	28.3	0.438	0.357	1.796	86.5	70.6	1.554	1.268
1.274	36.0	29.4	0.459	0.374	1.819	89.7	73.2	1.632	1.332
1.285	37.4	30.5	0.481	0.392	1.842	100.0	81.6	1.842	1.593
1.297	38.8	31.7	0.503	0.411					

PHOSPHORIC ACID—15° C. (59° F.)—according to Schiff.

Specific Gravity.	Percentage.		Specific Gravity.	Percentage.	
	H_3PO_4	P_2O_5		H_3PO_4	P_2O_5
1.0054	1	0.726	1.1962	31	22.506
1.0109	2	1.452	1.2036	32	23.232
1.0164	3	2.178	1.2111	33	23.958
1.0220	4	2.904	1.2186	34	24.684
1.0276	5	3.630	1.2262	35	25.410
1.0333	6	4.356	1.2338	36	26.136
1.0390	7	5.082	1.2415	37	26.862
1.0449	8	5.808	1.2493	38	27.588
1.0508	9	6.534	1.2572	39	28.314
1.0567	10	7.260	1.2651	40	29.040
1.0627	11	7.986	1.2731	41	29.766
1.0688	12	8.712	1.2812	42	30.492
1.0749	13	9.438	1.2894	43	31.218
1.0811	14	10.164	1.2976	44	31.944
1.0874	15	10.890	1.3059	45	32.670
1.0937	16	11.616	1.3143	46	33.496
1.1001	17	12.342	1.3227	47	34.222
1.1065	18	13.068	1.3313	48	34.948
1.1130	19	13.794	1.3399	49	35.674
1.1196	20	14.520	1.3486	50	36.400
1.1262	21	15.246	1.3573	51	37.126
1.1329	22	15.972	1.3661	52	37.852
1.1397	23	16.698	1.3750	53	38.578
1.1465	24	17.424	1.3840	54	39.304
1.1534	25	18.150	1.3931	55	40.030
1.1604	26	18.876	1.4022	56	40.756
1.1674	27	19.602	1.4114	57	41.482
1.1745	28	20.328	1.4207	58	42.208
1.1817	29	21.054	1.4301	59	42.934
1.1889	30	21.780	1.4395	60	43.660

POTASSA,—SODA, Aqueous Solutions at 15° C. (59° F.), according to Schiff.

POTASSA.				SODA.			
Specific Gravity.	KHO Percent.	Specific Gravity.	KHO Percent.	Specific Gravity.	NaHO Percent.	Specific Gravity.	NaHO Percent.
1.036	5	1.411	40	1.059	5	1.437	40
1.077	10	1.475	45	1.115	10	1.488	45
1.124	15	1.539	50	1.170	15	1.540	50
1.175	20	1.604	55	1.225	20	1.591	55
1.230	25	1.667	60	1.279	25	1.643	60
1.288	30	1.729	65	1.332	30	1.695	65
1.349	35	1.790	70	1.384	35	1.748	70

AMMONIA, Aqueous Solution at 14° C. (57.2° F.), according to Carius.

Specific Gravity.	Ammonia. Percent. by weight.	Specific Gravity.	Ammonia. Percent. by weight.	Specific Gravity.	Ammonia. Percent. by weight.	Specific Gravity.	Ammonia. Percent. by weight.	Specific Gravity.	Ammonia. Percent. by weight.	Specific Gravity.	Ammonia. Percent. by weight.
0.8844	36.0	0.8976	30.0	0.9133	24.0	0.9314	18.0	0.9520	12.0	0.9749	6.0
0.8848	35.8	0.8981	29.8	0.9139	23.8	0.9321	17.8	0.9527	11.8	0.9757	5.8
0.8852	35.6	0.8986	29.6	0.9145	23.6	0.9327	17.6	0.9534	11.6	0.9765	5.6
0.8856	35.4	0.8991	29.4	0.9150	23.4	0.9333	17.4	0.9542	11.4	0.9773	5.4
0.8860	35.2	0.8996	29.2	0.9156	23.2	0.9340	17.2	0.9549	11.2	0.9781	5.2
0.8864	35.0	0.9001	29.0	0.9162	23.0	0.9347	17.0	0.9556	11.0	0.9790	5.0
0.8868	34.8	0.9006	28.8	0.9168	22.8	0.9353	16.8	0.9563	10.8	0.9799	4.8
0.8872	34.6	0.9011	28.6	0.9174	22.6	0.9360	16.6	0.9571	10.6	0.9807	4.6
0.8877	34.4	0.9016	28.4	0.9180	22.4	0.9366	16.4	0.9578	10.4	0.9815	4.4
0.8881	34.2	0.9021	28.2	0.9185	22.2	0.9373	16.2	0.9586	10.2	0.9823	4.2
0.8885	34.0	0.9026	28.0	0.9191	22.0	0.9380	16.0	0.9593	10.0	0.9831	4.0
0.8889	33.8	0.9031	27.8	0.9197	21.8	0.9386	15.8	0.9601	9.8	0.9839	3.8
0.8894	33.6	0.9036	27.6	0.9203	21.6	0.9393	15.6	0.9608	9.6	0.9847	3.6
0.8898	33.4	0.9041	27.4	0.9209	21.4	0.9400	15.4	0.9616	9.4	0.9855	3.4
0.8903	33.2	0.9047	27.2	0.9215	21.2	0.9407	15.2	0.9623	9.2	0.9863	3.2
0.8907	33.0	0.9052	27.0	0.9221	21.0	0.9414	15.0	0.9631	9.0	0.9873	3.0
0.8911	32.8	0.9057	26.8	0.9227	20.8	0.9420	14.8	0.9639	8.8	0.9882	2.8
0.8916	32.6	0.9063	26.6	0.9233	20.6	0.9427	14.6	0.9647	8.6	0.9890	2.6
0.8920	32.4	0.9068	26.4	0.9239	20.4	0.9434	14.4	0.9654	8.4	0.9899	2.4
0.8925	32.2	0.9073	26.2	0.9245	20.2	0.9141	14.2	0.9662	8.2	0.9907	2.2
0.8929	32.0	0.9078	26.0	0.9251	20.0	0.9449	14.0	0.9670	8.0	0.9915	2.0
0.8934	31.8	0.9083	25.8	0.9257	19.8	0.9456	13.8	0.9677	7.8	0.9924	1.8
0.8938	31.6	0.9089	25.6	0.9264	19.6	0.9463	13.6	0.9685	7.6	0.9932	1.6
0.8943	31.4	0.9094	25.4	0.9271	19.4	0.9470	13.4	0.9693	7.4	0.9941	1.4
0.8948	31.2	0.9100	25.2	0.9277	19.2	0.9477	13.2	0.9701	7.2	0.9950	1.2
0.8953	31.0	0.9106	25.0	0.9283	19.0	0.9484	13.0	0.9709	7.0	0.9959	1.0
0.8957	30.8	0.9111	24.8	0.9289	18.8	0.9491	12.8	0.9717	6.8	0.9967	0.8
0.8962	30.6	0.9116	24.6	0.9296	18.6	0.9498	12.6	0.9725	6.6	0.9975	0.6
0.8967	30.4	0.9122	24.4	0.9302	18.4	0.9505	12.4	0.9733	6.4	0.9983	0.4
0.8971	30.2	0.9127	24.2	0.9308	18.2	0.9512	12.2	0.9741	6.2	0.9991	0.2

TABLE OF THE SOLUBILITY OF CHEMICALS IN WATER AND IN ALCOHOL.

Abbreviations: s. = soluble; ins. = insoluble; sp. = sparingly; v. = very; alm. = almost; dec. = decomposed.

CHEMICALS.	WATER.		ALCOHOL.	
	At 15° C. (59° F.).	Boiling.	At 15° C. (59° F.).	Boiling.
One part is soluble in:	*Parts.*	*Parts.*	*Parts.*	*Parts.*
Acidum Arseniosum	30–80	15	sp.	sp.
“ Benzoicum	500	15	3	1
“ Boricum	25	3	15	5
“ Carbolicum	20	—	v. s.	v. s.
“ Chromicum	v. s.	v. s.	dec.	dec.
“ Citricum	0.75	0.5	1	0.5
“ Gallicum	100	3	4.5	1
“ Salicylicum	450	14	2.5	v. s.
“ Tannicum	6	v. s.	0.6	v. s.
“ Tartaricum	0.7	0.5	2.5	0.2
Alumen	10.5	0.3	ins.	ins.
“ Exsiccatum	20	0.7	ins.	ins.
Aluminii Hydras	ins.	ins.	ins.	ins.
“ Sulphas	1.2	v. s.	alm. ins.	alm. ins.
Ammonii Benzoas	5	1.2	28	7.6
“ Bromidum	1.5	0.7	150	15
“ Carbonas	4	dec.	dec.	dec.
“ Chloridum	3	alm. ins.	1.37	alm. ins.
“ Iodidum	1	0.5	[illegible]	3.7
“ Nitras	0.5	v. s.	20	3
“ Phosphas	4	ins.	0.5	ins.
“ Sulphas	1.3	1	sp.	sp.
“ Valerianas	v. s.	v. s.	v. s.	v. s.
Antimonii et Potassii Tartras	17	3	ins.	ins.
“ Oxidum	alm. ins.	alm. ins.	ins.	ins.
“ Sulphidum	ins.	ins.	ins.	ins.
“ Sulphidum Purificatum	ins.	ins.	ins.	ins.
Antimonium Sulphuratum	ins.	ins.	ins.	ins.
Apomorphinæ Hydrochloras	6.8	dec.	50	dec.
Argenti Cyanidum	ins.	ins.	ins.	ins.
“ Iodidum	ins.	ins.	ins.	ins.
“ Nitras	0.8	0.1	26	5
“ “ Fusus	0.6	0.5	25	5
“ Oxidum	v. sp.	v. sp.	ins.	ins.
Arsenii Iodidum	3.5	dec.	10	dec.
Atropina	600	35	v. s.	v. s.
Atropinæ Sulphas	0.4	v. s.	6.5	v. s.

SOLUBILITY OF CHEMICALS IN WATER AND IN ALCOHOL—*Continued.*

CHEMICALS.	WATER.		ALCOHOL.	
	At 15° C. (59° F.).	Boiling.	At 15° C. (59° F.).	Boiling.
One part is soluble in :	*Parts.*	*Parts.*	*Parts.*	*Parts.*
Bismuthi Citras	ins.	ins.	ins.	ins.
" et Ammonii Citras	v. s.	v. s.	sp.	sp.
" Subcarbonas	ins.	ins.	ins.	ins.
" Subnitras	ins.	ins.	ins.	ins.
Bromum	33	—	dec.	dec.
Caffeina	75	9.5	35	v. s.
Calcii Bromidum	0.7	v. s.	1	v. s.
" Carbonas Præcipitatus	ins.	ins.	ins.	ins.
" Chloridum	1.5	v. s.	8	1.5
" Hypophosphis	6.8	6	ins.	ins.
" Phosphas Præcipitatus	ins.	ins.	ins.	ins.
Calx	750	1300	ins.	ins.
Camphora Monobromata	alm. ins.	alm. ins.	v. s.	v. s.
Cerii Oxalas	ins.	ins.	ins.	ins.
Chloral	v. s.	v. s.	v. s.	v. s.
Chrysarobinum	alm. ins.	alm. ins.	sp.	sp.
Cinchonidinæ Sulphas	100	4	71	12
Cinchonina	alm. ins.	alm. ins.	110	28
Cinchoninæ Sulphas	70	14	6	1.5
Codeina	80	17	v. s.	v. s.
Creta Præparata	ins.	ins.	ins.	ins.
Cupri Acetas	15	5	135	14
" Sulphas	2.6	0.5	ins.	ins.
Elaterinum	ins.	ins.	125	2
Ferri Chloridum	v. s.	v. s.	v. s.	v. s.
" Citras	s.	v. s.	ins.	ins.
" et Ammonii Citras	v. s.	v. s.	ins.	ins.
" " " Sulphas	3	0.8	ins.	ins.
" " " Tartras	v. s.	v. s.	ins.	ins.
" " Potassii Tartras	v. s.	v. s.	ins.	ins.
" " Quininæ Citras	s.	v. s.	ins.	ins.
" " Strychninæ Citras	v. s.	v. s.	ins.	ins.
" Hypophosphis	sp.	sp.	ins.	ins.
" Lactas	40	12	alm. ins.	alm. ins.
" Oxalas	sp.	sp.	ins.	ins.
" Oxidum Hydratum	ins.	ins.	ins.	ins.
" Phosphas	v. s.	v. s.	ins.	ins.
" Pyrophosphas	v. s.	v. s.	ins.	ins.
" Sulphas	1.8	0.3	ins.	ins.
" " Præcipitatus	1.8	0.3	ins.	ins.
" Valerianas	ins.	dec.	v. s.	v. s.
Hydrargyri Chloridum Corrosivum	16	2	3	1.2
" " Mite	ins.	ins.	ins.	ins.
" Cyanidum	12.8	3	15	6
" Iodidum Rubrum	alm. ins.	alm. ins.	130	15
" Iodidum Viride	alm. ins.	alm. ins.	ins.	ins.
" Oxidum Flavum	ins.	ins.	ins.	ins.
" " Rubrum	ins.	ins.	ins.	ins.
" Subsulphas Flavus	ins.	ins.	ins.	ins.
" Sulphidum Rubrum	ins.	ins.	ins.	ins.
Hydrargyrum Ammoniatum	ins.	ins.	ins.	ins.

SOLUBILITY OF CHEMICALS IN WATER AND IN ALCOHOL—*Continued.*

CHEMICALS.	WATER.		ALCOHOL.	
	At 15° C. (59° F.).	Boiling.	At 15° C. (59° F.).	Boiling.
One part is soluble in:	*Parts.*	*Parts.*	*Parts.*	*Parts.*
Hyoscyaminæ Sulphas	v. s.	v. s.	v. s.	v. s.
Iodoformum	ins.	ins.	80	15
Iodum	sp.	—	11	—
Lithii Benzoas	4	2.5	12	10
“ Bromidum	v. s.	v. s.	v. s.	v. s.
“ Carbonas	130	130	ins.	ins.
“ Citras	5.5	2.5	sp.	sp.
“ Salicylas	v. s.	v. s.	v. s.	v. s.
Magnesia	alm. ins.	alm. ins.	ins.	ins.
“ Ponderosa	alm. ins.	alm. ins.	ins.	ins.
Magnesii Carbonas	alm. ins.	alm. ins.	ins.	ins.
“ Sulphas	0.8	0.15	ins.	ins.
“ Sulphis	20	19	ins.	ins.
Mangani Oxidum Nigrum	ins.	ins.	ins.	ins.
“ Sulphas	0.7	0.8	ins.	ins.
Morphina	v. sp.	500	100	36
Morphinæ Acetas	12	1.5	68	14
“ Hydrochloras	24	0.5	63	31
“ Sulphas	24	0.75	702	144
Phosphorus	ins.	ins.	v. sp.	v. sp.
Physostigminæ Salicylas	130	30	12	v. s.
Picrotoxinum	150	25	10	3
Pilocarpinæ Hydrochloras	v. s.	v. s.	v. s.	v. s.
Piperina	alm. ins.	alm. ins.	30	1
Plumbi Acetas	1.8	0.5	8	1
“ Carbonas	ins.	ins.	ins.	ins.
“ Iodidum	2000	200	v. sp.	v. sp.
“ Nitras	2	0.8	alm. ins.	alm. ins.
“ Oxidum	ins.	ins.	ins.	ins.
Potassa	0.5	v. s.	2	v. s.
Potassii Acetas	0.4	v. s.	2.5	v. s.
“ Bicarbonas	3.2	dec.	alm. ins.	alm. ins.
“ Bichromas	10	1.5	ins.	ins.
“ Bitartras	210	15	v. sp.	v. sp.
“ Bromidum	1.6	1	200	16
“ Carbonas	1	0.7	ins.	ins.
“ Chloras	16.5	2	v. sp.	v. sp.
“ Citras	0.6	v. s.	v. sp.	v. sp.
“ Cyanidum	2	1	sp.	sp.
“ et Sodii Tartras	2.5	v. s.	alm. ins.	alm. ins.
“ Ferrocyanidum	4	2	ins.	ins.
“ Hypophosphis	0.6	0.3	7.3	3.6
“ Iodidum	0.8	0.5	18	6
“ Nitras	4	0.4	alm. ins.	alm. ins.
“ Permanganas	20	3	dec.	dec.
“ Sulphas	9	4	ins.	ins.
“ Sulphis	4	5	sp.	sp.
“ Tartras	0.7	0.5	alm. ins.	alm. ins.
Quinidinæ Sulphas	100	7	8	v. s.
Quinina	1600	700	6	2
Quininæ Bisulphas	10	v. s.	32	v. s.

SOLUBILITY OF CHEMICALS IN WATER AND IN ALCOHOL—*Continued.*

CHEMICALS.	WATER.		ALCOHOL.	
	At 15° C. (59° F.).	Boiling.	At 15° C. (59° F.).	Boiling.
One part is soluble in :	*Parts.*	*Parts.*	*Parts.*	*Parts.*
Quininæ Hydrobromas	16	1	3	1 or less.
" Hydrochloras	34	1	3	v. s.
" Sulphas	740	30	65	3
" Valerianas	100	40	5	1
Saccharum	0.5	0.2	175	28
" Lactis	7	1	ins.	ins.
Salicinum	28	0.7	30	2
Santoninum	alm. ins.	250	40	3
Soda	1.7	0.8	v. s.	v. s.
Sodii Acetas	3	1	30	2
" Arsenias	4	v. s.	v. sp.	60
" Benzoas	1.8	1.3	45	20
" Bicarbonas	12	dec.	ins.	ins.
" " Venalis	12	dec.	ins.	ins.
" Bisulphis	4	2	72	49
" Boras	16	0.5	ins.	ins.
" Bromidum	1.2	0.5	13	11
" Carbonas	1.6	0.25	ins.	ins.
" Chloras	1.1	0.5	40	43
" Chloridum	2.8	2.5	alm. ins.	alm. ins.
" Hypophosphis	1	0.12	30	1
" Hyposulphis	1.5	0.5	ins.	ins.
" Iodidum	0.6	0.3	1.8	1.4
" Nitras	1.3	0.6	sp.	40
" Phosphas	6	2	ins.	ins.
" Pyrophosphas	12	1.1	ins.	ins.
" Salicylas	1.5	v. s.	6	v. s.
" Santoninas	3	0.5	12	3.4
" Sulphas	2.8	0.4	ins.	ins.
" Sulphis	4	0.9	sp.	sp.
" Sulphocarbolas	5	0.7	132	10
Strychnina	6700	2500	110	12
Strychninæ Sulphas	10	2	60	2
Sulphur Lotum	ins.	ins.	ins.	ins.
" Præcipitatum	ins.	ins.	ins.	ins.
" Sublimatum	ins.	ins.	ins.	ins.
Thymol	1200	900	1	v. s.
Veratrina	v. sp.	v. sp.	3	v. s.
Zinci Acetas	3	1.5	30	3
" Bromidum	v. s.	v. s.	v. s.	v. s.
" Carbonas Præcipitatus	ins.	ins.	ins.	ins.
" Chloridum	v. s.	v. s.	v. s.	v. s.
" Iodidum	v. s.	v. s.	v. s.	v. s.
" Oxidum	ins.	ins.	ins.	ins.
" Phosphidum	ins.	ins.	ins.	ins.
" Sulphas	0.6	0.3	ins.	ins.
" Valerianas	100	—	40	—

SATURATION TABLES.

I. Table showing the Quantity of Officinal Alkalies required to Saturate 100 Parts of an Officinal Acid, together with the Quantity of Product.

	ACIDS.	*Of percent.*	Ammonii Carbonas, 100 per cent.	Aqua Ammoniæ, 10 per cent.	Aqua Ammoniæ Fort. 28 per cent.	Product.	Potassa, 90 per cent.	Liquor Potassæ, 5 per cent.	Potassii Bicarbonas, 100 per cent.	Potassii Carbonas, 81 per cent.	Product.	Soda, 90 per cent.	Liquor Sodæ, 5 per cent.	Sodii Bicarbonas, 99 per cent.	Sodii Bicarbonas Venalis, 95 per cent.	Sodii Carbonas, 96 per cent.	Product.
ACIDUM	Aceticum	36	31.40	102.00	36.43	**46.20**	37.33	672.00	60.00	51.11	**58.80**	26.66	479.88	50.91	53.05	89.38	**81.60**
	" Dilutum	6	5.23	17.00	6.07	**7.70**	6.22	112.00	10.00	8.52	**9.80**	4.44	79.98	8.49	8.84	14.89	**13.60**
	" Glaciale	99	86.35	280.50	100.18	**127.05**	102.66	1847.88	165.00	140.53	**169.20**	73.32	1319.67	140.00	145.89	245.80	**224.40**
	Arseniosum	97	51.33	166.74	59.69	**122.50**	61.03	1098.54	98.08	83.55	**147.52**	43.59	784.62	83.22	84.94	146.09	**127.46**
	Benzoicum	100	42.90	139.34	49.77	**113.93**	51.00	918.00	81.97	69.82	**175.41**	36.43	655.74	69.55	72.47	122.09	**132.79**
	Citricum	100	74.76	242.86	86.73	**121.43**	88.89	1600.02	142.86	121.69	**154.29**	63.49	1142.82	122.83	126.32	212.80	**178.57**
	Hydrobromicum Dil.	10	6.49	21.04	7.51	**12.10**	7.70	138.60	12.37	10.49	**14.70**	5.50	99.00	10.50	10.94	18.44	**12.72**
	Hydrochloricum	31.9	45.86	148.98	53.21	**46.80**	48.54	872.72	87.64	74.65	**65.20**	38.97	701.46	74.36	77.49	125.32	**51.18**
	" Dil.	10	14.38	46.70	16.68	**14.67**	17.09	307.69	27.47	23.40	**20.44**	12.21	219.78	23.31	24.29	40.92	**16.50**
	Lacticum	75	43.52	141.67	50.60	**89.17**	51.85	933.33	83.33	70.99	**106.67**	37.04	666.67	70.71	73.68	124.13	**93.33**
	Nitricum	69.4	51.88	168.54	60.20	**88.13**	61.69	1110.40	99.14	84.46	**111.26**	44.06	793.14	84.12	87.66	147.68	**93.63**
	" Dilutum	10	8.31	26.98	9.64	**12.70**	9.88	177.78	15.87	13.52	**16.19**	7.05	126.98	13.47	14.03	23.64	**13.65**
	Phosphoricum	50	53.40	173.47	61.95	**67.35**	63.49	1142.86	102.04	86.93	**88.79**	45.35	816.33	86.58	90.22	152.00	**182.65**
	" Dil.	10	10.68	34.69	12.39	**13.47**	12.70	228.57	20.41	17.39	**17.76**	9.07	167.27	17.32	18.04	30.40	**36.53**
	Salicylicum	100	37.95	123.18	43.99	**112.32**	45.09	811.58	72.46	123.46	**133.09**	28.99	521.74	61.48	64.06	107.94	**122.46**
	Sulphuricum	96	102.53	333.06	118.95	**121.46**	121.90	2194.28	195.92	166.90	**170.45**	87.07	1567.35	166.23	173.23	291.83	**315.43**
	" Dil.	9.6	10.25	33.31	11.90	**12.15**	12.19	219.43	19.59	16.69	**17.05**	8.71	156.73	16.62	17.32	29.18	**31.54**
	Tartaricum	100	69.78	226.67	80.95	**122.67**	82.96	1493.33	133.33	103.58	**156.67**	59.26	1066.67	113.13	117.89	198.61	**153.33**

II. Table showing the Quantity of Officinal Acids required to Saturate 100 Parts of an Officinal Alkali, together with the Quantity of Product.

ALKALIES.	*Of percent.*	Acidum Aceticum, 36 per cent.	Acidum Aceticum Dilutum, 6 per cent.	Acidum Aceticum Glaciale, 99 per cent.	Product.	Acidum Arseniosum, 97 per cent.	Product.	Acidum Benzoicum, 100 per cent.	Product.	Acidum Citricum, 100 per cent.	Product.	Acidum Hydrobromicum Dilutum, 10 per cent.	Product.	Acidum Hydrochloricum, 31.9 per cent.	Acidum Hydrochloricum Dilutum, 10 per cent.	Product.
Ammonii Carbonas. .	100	318.47	1910.82	115.81	147.16	194.85	238.75	233.12	256.61	133.76	166.27	1543.95	186.88	218.04	695.54	102.04
Aqua Ammoniæ	10	98.03	588.18	35.65	45.30	59.97	73.47	71.76	81.76	41.18	51.18	475.29	57.53	67.12	214.12	31.41
Aqua Ammon. Fort.	28	274.48	1646.90	99.82	126.84	170.29	205.93	200.94	228.94	115.30	143.29	1330.81	161.08	187.94	599.54	87.95
Potassa.	90	267.86	1607.16	97.40	157.50	54.61	234.48	196.07	361.79	112.50	173.57	1298.57	190.93	183.39	585.00	119.56
Liquor Potassæ.	5	14.88	89.29	5.41	8.75	3.03	13.03	10.89	20.10	6.25	9.64	72.14	10.61	10.19	32.50	6.64
Potassii Bicarbonas .	100	166.67	1000.02	60.60	98.00	101.96	145.90	122.00	214.00	70.00	108.00	808.00	118.80	114.42	365.00	74.40
Potassii Carbonas. . .	81	206.53	1239.12	75.10	114.90	119.69	171.13	143.22	251.22	82.18	126.78	948.52	139.46	133.95	427.30	87.34
Soda	90	375.00	2250.00	136.36	306.00	219.06	292.28	274.50	364.50	157.50	206.25	1818.00	231.30	256.74	819.00	131.40
Liquor Sodæ.	5	20.83	125.00	7.58	17.00	12.17	16.35	15.25	20.25	8.75	11.46	108.00	12.85	14.26	45.50	7.30
Sodii Bicarbonas. . . .	99	196.42	1178.52	71.43	160.28	120.17	153.09	143.78	190.92	82.50	147.32	952.30	121.16	134.48	429.00	68.83
Sodii. Bicarb. Venal.	95	188.47	1130.82	68.53	153.81	114.69	146.91	137.98	183.32	79.16	141.37	913.10	116.26	129.03	411.17	66.05
Sodii Carbonas	96	111.61	669.66	40.68	91.30	68.44	87.20	81.20	108.76	46.99	94.98	542.43	69.01	76.61	244.40	39.20

Table showing the Quantity of Officinal Acids required to Saturate 100 Parts of an Officinal Alkali, together with the Quantity of Product—*Continued.*

ALKALIES.	Of per cent.	Acidum Lacticum, 75 per cent.	Product.	Acidum Nitricum, 69.4 per cent.	Acidum Nitricum Dilutum, 10 per cent.	Product.	Acidum Phosphoricum, 50 per cent	Acidum Phosphoricum Dilutum, 10 per cent.	Product.	Acidum Salicylicum, 100 per cent.	Product.	Acidum Sulphuricum, 96 per cent.	Acidum Sulphuricum Dilutum, 9.6 per cent.	Product.	Acidum Tartaricum, 100 per cent.	Product.
mmonii Carbonas..	100	229.29	**204.50**	173.46	1203.82	**152.87**	187.26	936.30	**126.11**	263.69	**296.23**	97.53	975.31	**118.19**	143.31	**175.83**
Aqua Ammoniæ	10	70.59	**61.77**	53.40	370.59	**47.06**	57.64	288.21	**38.82**	81.18	**91.18**	30.03	300.22	**36.47**	44.12	**54.12**
Aqua Ammon. Fort.	28	197.65	**176.23**	149.52	1037.65	**131.77**	161.39	806.99	**108.70**	227.30	**254.11**	84.06	840.62	**102.13**	123.54	**151.53**
otassa...........	90	192.86	**205.71**	145.89	1012.50	**162.32**	157.50	787.50	**139.82**	221.79	**297.32**	82.03	820.31	**139.82**	120.54	**188.84**
iquor Potassæ.....	5	10.71	**11.43**	8.11	56.25	**9.02**	8.75	43.75	**7.77**	12.32	**16.52**	4.56	45.57	**7.77**	6.70	**10.49**
otassii Bicarbonas .	100	120.00	**128.00**	90.78	630.00	**101.00**	98.00	490.00	**174.00**	138.00	**185.00**	51.04	510.41	**174.00**	75.00	**117.50**
otassii Carbonas...	81	140.87	**150.26**	106.57	739.56	**118.57**	86.06	430.30	**102.13**	162.00	**217.17**	58.36	583.56	**102.13**	88.05	**137.93**
oda.......	90	273.33	**272.00**	204.25	1417.50	**191.25**	220.50	1102.50	**402.75**	155.25	**380.25**	114.85	1148.50	**362.25**	168.75	**258.75**
iquor Sodæ.......	5	15.18	**15.11**	11.35	78.75	**10.62**	12.25	61.25	**22.38**	8.51	**21.13**	6.38	63.80	**20.13**	9.99	**14.38**
odii Bicarbonas ...	99	142.28	**132.00**	106.99	742.50	**100.18**	115.50	1155.00	**210.96**	162.17	**199.18**	60.15	601.56	**189.70**	88.39	**135.54**
odii Bicarb. Venal..	95	135.70	**126.66**	102.67	712.50	**96.13**	98.92	494.60	**202.44**	156.07	**191.07**	57.72	577.18	**181.48**	84.82	**130.06**
odii Carbonas	96	80.56	**75.19**	60.90	422.94	**57.06**	45.86	229.30	**120.18**	92.64	**113.45**	34.16	341.59	**104.59**	50.35	**77.20**

III. Table showing the Quantity of Officinal Alkalies and Acids required to make 100 Parts of Salt.

AMMONIUM SALTS.

AMMONIUM SALTS.	PARTS OF ALKALI REQUIRED.			PARTS OF ACID REQUIRED.		
	Ammonium Carbonate (100 per cent. = 32.49 per cent. NH_3).	Water of Ammonia, 10 per cent.	Stronger Water of Ammonia, 28 per cent.			Of percent.
Ammonium Acetate......$NH_4C_2H_3O_2$; 77	67.96	220.80	78.86	216.44 1298.66 78.71	Acetic " Dil. " Glacial	36 6 99
" Arsenite......NH_4AsO_2 ; 124.9	41.89	136.10	48.61	81.63	Arsenious	97
" Benzoate.....$NH_4C_7H_5O_2$; 139.0	37.64	122.30	43.68	87.77	Benzoic	100
" Bromide......$NH_4Br.$; 97.8	53.49	173.80	62.07	826.20	Hydrobromic, Dil.	10
" Chloride......$NH_4Cl.$; 53.4	98.00	318.40	113.71	213.67 681.60	Hydrochloric " Dil.	31.9 10
" Citrate.......$(NH_4)_3C_6H_5O_7$; 261	60.14	195.40	69.79	80.46	Citric	100
" Lactate.......$NH_4C_3H_5O_3$; 107	48.91	158.90	56.75	112.15	Lactic	75
" Nitrate.......NH_4NO_3 ; 80	65.40	212.50	75.89	113.47 787.50	Nitric " Dil.	69.4 10
" Phosphate....$(NH_4)_2HPO_4$; 132	79.29	257.60	92.00	148.48 742.40	Phosphoric " Dil.	50 10
" Salicylate.... $NH_4C_7H_5O_3$; 155	33.76	109.70	39.18	89.03	Salicylic	100
" Sulphate.....$(NH_4)_2SO_4$; 124	64.54	209.70	74.89	82.32 823.23	Sulphuric " Dil.	96 9.6
" Tartrate......$(NH_4)_2C_4H_4O_6$; 184	56.88	184.80	66.00	81.52	Tartaric	100

TABLE SHOWING THE QUANTITY OF OFFICINAL ALKALIES AND ACIDS REQUIRED TO MAKE 100 PARTS OF SALT—*Continued.*

POTASSIUM SALTS.

POTASSIUM SALTS.	PARTS OF ALKALI REQUIRED.				PARTS OF ACID REQUIRED.		
	Potassa, 90 per cent.	Solution of Potassa, 5 per cent.	Potassium Bicarbonate, 100 per cent.	Potassium Carbonate, 81 per cent.			*Of percent.*
Potassium Acetate........$KC_2H_3O_2$; 98	63.49	1143.22	102.04	173.84	170.12	Acetic...........	36
					1020.72	" Dil.........	6
					61.86	" Glacial.....	99
" Arsenite.......$KAsO_2$; 145.9	41.89	753.93	68.54	58.38	69.88	Arsenious.........	97
" Benzoate......$KC_7H_5O_2.3H_2O$; 214..........	29.08	523.37	45.79	79.61	57.01	Benzoic	100
" Bromide.......KBr.; 118.8..................	52.38	942.75	84.18	71.76	680.13	Hydrobromic, Dil..	10
" Chloride...... KCl.; 74.4..................	83.63	1504 39	134.41	114.49	156.50	Hydrochloric	31.9
					499.25	" Dil...	10
" Citrate........$K_3C_6H_5O_7.H_2O$; 324..........	57.62	1037.16	92.59	78.88	64.81	Citric	100
" Lactate........$KC_3H_5O_3$; 128	48.61	875.00	78.13	66.55	93.75	Lactic............	75
" Nitrate........KNO_3 ; 101	61.61	1108.91	99.01	84.34	89.88	Nitric	69.4
					623.76	" Dil.........	10
" Phosphate.....K_2HPO_4 ; 174	71.52	1287.36	114.95	97.91	112.60	Phosphoric	50
					563.22	" Dil.....	10
" Salicylate .....$2KC_7H_5O_3.H_2O$; 370..........	33.63	605.39	54.05	46.04	74.59	Salicylic..........	100
" Sulphate ......K_2SO_4 ; 174	71.52	1287.36	114.95	97.91	58.67	Sulphuric	96
					586.69	" Dil......	9.6
" Tartrate.... ..$2K_2C_4H_4O_6.H_2O$; 470	52.96	953.19	85.11	72.50	63.83	Tartaric	100

TABLE SHOWING THE QUANTITY OF OFFICINAL ALKALIES AND ACIDS REQUIRED TO MAKE 100 PARTS OF SALT—*Continued.*

SODIUM SALTS.

SODIUM SALTS.	PARTS OF ALKALI REQUIRED.					PARTS OF ACID REQUIRED.		
	Soda, 90 per cent.	Solution of Soda, 5 per cent.	Sodium Bicarbonate, 99 per cent.	Commercial Sodium Bicarbonate, 95 per cent.	Sodium Carbonate, 96 per cent.			*Of percent.*
Sodium Acetate.....$NaC_2H_3O_2.3H_2O$; 136.....	32.68	588.23	62.39	65.02	109.53	122.55	Acetic...........	36
						735.29	" Dil.........	6
						44.55	" Glacial	99
" Arsenite ....$NaAsO_2$; 129.9............	34.21	615.86	65.32	68.07	114.67	78.49	Arsenious	97
" Benzoate....$NaC_7H_5O_2.H_2O$; 162.......	27.43	493.82	52.38	54.58	91.95	75.31	Benzoic	100
" Bromide ....$NaBr.$; 102.8............	43.23	778.21	82.54	86.01	144.90	785.99	Hydrobromic	10
" Chloride ....$NaCl.$; 58.4..............	76.10	1369.86	145.29	151.41	255.07	195.38	Hydrochloric... ..	31.9
						623.27	" Dil...	10
" Citrate......$Na_3C_6H_5O_7.5\frac{1}{2}H_2O$; 375 ...	35.56	640.00	67.88	70.74	119.17	56.00	Citric	100
" Lactate .....$NaC_3H_5O_3$; 112	39.68	714.29	75.76	78.95	133.00	107.14	Lactic...........	75
" Nitrate .....$NaNO_3$; 85	52.29	941.18	99.82	104.02	175.25	106.80	Nitric...........	69.4
						741.18	" Dil.........	10
" Phosphate ..$Na_2HPO_4.12H_2O$; 358	24.83	446.92	47.40	49.40	83.22	54.75	Phosphoric	50
						273.74	" Dil. ...	10
" Salicylate...$2NaC_7H_5O_3.H_2O$; 338.....	26.27	472.78	50.21	52.32	88.14	81.66	Salicylic.........	100
" Sulphate....$Na_2SO_4.10H_2O$; 322	27.60	496.89	52.70	54.92	92.52	31.70	Sulphuric	96
						317.03	" Dil.....	9.6
" Tartrate ....$Na_2C_4H_4O_6.2H_2O$; 230	38.65	695.65	73.78	76.89	129.53	65.22	Tartaric	100

LIST OF ARTICLES ADDED TO THE PHARMACOPŒIA.

Latin Title.	**English Title.**
Abstractum Aconiti	Abstract of Aconite.
" Belladonnæ	" of Belladonna.
" Conii	" of Conium.
" Digitalis	" of Digitalis.
" Hyoscyami	" of Hyoscyamus.
" Ignatiæ	" of Ignatia.
" Jalapæ	" of Jalap.
" Nucis Vomicæ	" of Nux Vomica.
" Podophylli	" of Podophyllum.
" Senegæ	" of Senega.
" Valerianæ	" of Valerian.
Acidum Aceticum Glaciale	Glacial Acetic Acid.
" Boricum	Boric Acid.
" Hydrobromicum Dilutum	Diluted Hydrobromic Acid.
" Oleicum	Oleic Acid.
" Phosphoricum	Phosphoric Acid.
" Salicylicum	Salicylic Acid.
Æther Aceticus	Acetic Ether.
Aluminii Hydras	Hydrate of Aluminium.
Ammonii Phosphas	Phosphate of Ammonium.
Amyl Nitris	Nitrite of Amyl.
Amylum Iodatum	Iodized Starch.
Antimonii Sulphidum Purificatum	Purified Sulphide of Antimony.
Apomorphinæ Hydrochloras	Hydrochlorate of Apomorphine.
Argenti Iodidum	Iodide of Silver.
" Nitras Dilutus	Diluted Nitrate of Silver.
Arnicæ Radix	Arnica Root.
Auri et Sodii Chloridum	Chloride of Gold and Sodium.
Benzinum	Benzin.
Bismuthi Citras	Citrate of Bismuth.
Bismuthi et Ammonii Citras	Citrate of Bismuth and Ammonium.
Bryonia	Bryonia.
Caffeina	Caffeine.
Calcii Bromidum	Bromide of Calcium.
Calendula	Calendula.
Calx Sulphurata	Sulphurated Lime.

Latin Title.	English Title.
Camphora Monobromata	Monobromated Camphor.
Carbonei Bisulphidum	Bisulphide of Carbon.
Caulophyllum	Caulophyllum.
Ceratum Camphoræ	Camphor Cerate.
Charta Potassii Nitratis	Nitrate of Potassium Paper.
Chelidonium	Chelidonium.
Chinoidinum	Chinoidin.
Chrysarobinum	Chrysarobin.
Cinchonidinæ Sulphas	Sulphate of Cinchonidine.
Cinchonina	Cinchonine.
Codeina	Codeine.
Collodium Stypticum	Styptic Collodion.
Cupri Acetas	Acetate of Copper.
Decocta	Decoctions (General Formula).
Elaterinum	Elaterin.
Elixir Aurantii	Elixir of Orange.
Emplastrum Capsici	Capsicum Plaster.
" Ichthyocollæ	Isinglass Plaster.
Erythroxylon	Erythroxylon.
Eucalyptus	Eucalyptus.
Extractum Aconiti Fluidum	Fluid Extract of Aconite.
" Aloes Aquosum	Aqueous Extract of Aloes.
" Arnicæ Radicis	Extract of Arnica Root.
" Arnicæ Radicis Fluidum	Fluid Extract of Arnica Root.
" Aromaticum Fluidum	Aromatic Fluid Extract.
" Aurantii Amari Fluidum	Fluid Extract of Bitter Orange Peel.
" Brayeræ Fluidum	" " of Brayera.
" Calami Fluidum	" " of Calamus.
" Cannabis Indicæ Fluidum	" " of Indian Cannabis.
" Capsici Fluidum	" " of Capsicum.
" Castaneæ Fluidum	" " of Chestnut.
" Chiratæ Fluidum	" " of Chirata.
" Conii Alcoholicum (fr. fruit)	Alcoholic Extract of Conium.
" Cypripedii Fluidum	Fluid Extract of Cypripedium.
" Ergotæ	Extract of Ergot.
" Erythroxyli Fluidum	Fluid Extract of Erythroxylon.
" Eucalypti Fluidum	" " of Eucalyptus.
" Euonymi Fluidum	Extract of Euonymus.
" Eupatorii Fluidum	Fluid Extract of Eupatorium.
" Frangulæ Fluidum	" " of Frangula.
" Glycyrrhizæ Purum	Pure Extract of Glycyrrhizæ.
" Grindeliæ Fluidum	Fluid Extract of Grindelia.
" Guaranæ Fluidum	" " of Guarana.
" Hamamelidis Fluidum	" " of Hamamelis.
" Iridis	Extract of Iris.
" Iridis Fluidum	Fluid Extract of Iris.
" Lactucarii Fluidum	" " of Lactucarium.
" Leptandræ	Extract of Leptandra.

Latin Title.	**English Title.**
Extractum Leptandræ Fluidum	Fluid Extract of Leptandra.
" Lobeliæ Fluidum	" " of Lobelia.
" Malti	Extract of Malt.
" Mezerei	" of Mezereum.
" Nucis Vomicæ Fluidum	Fluid Extract of Nux Vomica.
" Pilocarpi Fluidum	" " of Pilocarpus.
" Podophylli Fluidum	" " of Podophyllum.
" Quassiæ Fluidum	" " of Quassia.
" Rhois Glabræ Fluidum	" " of Rhus Glabra.
" Rosæ Fluidum	" " of Rose.
" Rumicis Fluidum	" " of Rumex.
" Sanguinariæ Fluidum	" " of Sanguinaria.
" Scutellariæ Fluidum	" " of Scutellaria.
" Stramonii Fluidum	" " of Stramonium.
" Tritici Fluidum	" " of Triticum.
" Viburni Fluidum	" " of Viburnum.
" Xanthoxyli Fluidum	" " of Xanthoxylum.
Fel Bovis	Ox Gall.
" Inspissatum	Inspissated Ox Gall.
" Purificatum	Purified Ox Gall.
Ferri Carbonas Saccharatus	Saccharated Carbonate of Iron.
" Iodidum Saccharatum	" Iodide of Iron.
" Oxidum Hydratum cum Magnesia ..	Hydrated Oxide of Iron with Magnesia.
" Sulphas Præcipitatus	Precipitated Sulphate of Iron.
" Valerianas	Valerianate of Iron.
Frangula	Frangula.
Glyceritum Amyli	Glycerite of Starch.
" Vitelli	" of Yolk of Egg.
Glycyrrhizinum Ammoniatum	Ammoniated Glycyrrhizin.
Grindelia	Grindelia.
Guarana	Guarana.
Hamamelis	Hamamelis.
Hyoscyaminæ Sulphas	Sulphate of Hyoscyamine.
Illicium	Illicium.
Infusa	Infusions (General Formula).
Infusum Brayeræ	Infusion of Brayera.
" Cinchonæ	" of Cinchona.
" Sennæ Compositum	Compound Infusion of Senna.
Linimentum Belladonnæ	Belladonna Liniment.
" Sinapis Compositum	Compound Liniment of Mustard.
Liquor Ferri Acetatis	Solution of Acetate of Iron.
" Ferri et Quininæ Citratis	" of Citrate of Iron and Quinine.
" Pepsini	" of Pepsin.
" Sodii Silicatis	" of Silicate of Sodium.
Lithii Benzoas	Benzoate of Lithium.
" Bromidum	Bromide of Lithium.
" Salicylas	Salicylate of Lithium.
Magnesia Ponderosa	Heavy Magnesia.

Latin Title.	English Title.
Magnesii Citras Granulatus	Granulated Citrate of Magnesium.
" Sulphis	Sulphite of Magnesium.
Maltum	Malt.
Menispermum	Menispermum.
Mistura Ferri et Ammonii Acetatis	Mixture of Acetate of Iron and Ammonium.
" Magnesiæ et Asafœtidæ	" of Magnesia and Asafetida.
" Rhei et Sodæ	" of Rhubarb and Soda.
Mucilago Cydonii	Mucilage of Cydonium.
Oleatum Hydrargyri	Oleate of Mercury.
" Veratrinæ	" of Veratrine.
Oleum Adipis	Lard Oil.
" Aurantii Corticis	Oil of Orange Peel.
" Aurantii Florum	" of Orange Flowers.
" Coriandri	" of Coriander.
" Eucalypti	" Eucalyptus.
" Gossypii Seminis	Cotton Seed Oil.
" Lavandulæ Florum	Oil of Lavender Flowers.
" Myrciæ	" of Myrcia.
" Phosphoratum	Phosphorated Oil.
" Picis Liquidæ	Oil of Tar.
" Santali	" of Santal.
" Sinapis Volatile	Volatile Oil of Mustard.
Opii Pulvis	Powdered Opium.
Opium Denarcotisatum	Denarcotized Opium.
Pepsinum Saccharatum	Saccharated Pepsin.
Petrolatum	Petrolatum.
Physostigminæ Salicylas	Salicylate of Physostigmine.
Picrotoxinum	Picrotoxin.
Pilocarpinæ Hydrochloras	Hydrochlorate of Pilocarpine.
Pilocarpus	Pilocarpus.
Pilulæ Aloes et Ferri	Pills of Aloes and Iron.
" Phosphori	" of Phosphorus.
Piperina	Piperine.
Pulsatilla	Pulsatilla.
Pulvis Antimonialis	Antimonial Powder.
" Cretæ Compositus	Compound Chalk Powder.
" Glycyrrhizæ Compositus	" Powder of Glycyrrhiza.
" Morphinæ Compositus	" " of Morphine.
Quillaia	Quillaia.
Quinidinæ Sulphas	Sulphate of Quinidine.
Quinina	Quinine.
Quininæ Bisulphas	Bisulphate of Quinine.
" Hydrobromas	Hydrobromate of Quinine.
" Hydrochloras	Hydrochlorate of Quinine.
Resina Copaibæ	Resin of Copaiba.
Rubus Idæus	Raspberry.
Salicinum	Salicin.
Sapo Viridis	Green Soap.

Latin Title.	**English Title.**
Sodii Benzoas	Benzoate of Sodium.
" Bisulphis	Bisulphite of Sodium.
" Bromidum	Bromide of Sodium.
" Chloras	Chlorate of Sodium.
" Iodidum	Iodide of Sodium.
" Pyrophosphas	Pyrophosphate of Sodium.
" Salicylas	Salicylate of Sodium.
" Santoninas	Santoninate of Sodium.
" Sulphocarbolas	Sulphocarbolate of Sodium.
Spiritus Ætheris	Spirit of Ether.
" Aurantii	" of Orange.
" Gaultheriæ	" of Gaultheria.
" Odoratus	Perfumed Spirit.
Staphisagria	Staphisagria.
Sumbul	Sumbul.
Suppositoria (in Ph. 1870 a chapter heading)	Suppositories.
Syrupus Acidi Hydriodici	Syrup of Hydriodic Acid.
" Althaeæ	" of Althæa.
" Calcii Lactophosphatis	" of Lactophosphate of Calcium.
" Calcis	" of Lime.
" Ferri Bromidi	" of Bromide of Iron.
" Ferri Quininæ et Strychninæ Phosphatum	" of the Phosphates of Iron, Quinine, and Strychnine.
" Hypophosphitum	" of Hypophosphites.
" Hypophosphitum cum Ferro	" of Hypophosphites with Iron.
" Picis Liquidæ	" of Tar.
" Rubi Idæi	" of Raspberry.
" Sennæ	" of Senna.
Thuja	Thuja.
Thymol	Thymol.
Tinctura Arnicæ Radicis	Tincture of Arnica Root.
" Aurantii Dulcis	" of Sweet Orange Peel.
" Bryoniæ	" of Bryonia.
" Calendulæ	" of Calendula.
" Chiratæ	" of Chirata.
" Cimicifugæ	" of Cimicifuga.
" Croci	" of Saffron.
Tincturæ Herbarum Recentium	Tinctures of Fresh Herbs.
Tinctura Ferri Acetatis	Tincture of Acetate of Iron.
" Gelsemii	" of Gelsemium.
" Hydrastis	" of Hydrastis.
" Ignatiæ	" of Ignatia.
" Ipecacuanhæ et Opii	" of Ipecac and Opium.
" Matico	" of Matico.
" Moschi	" of Mochus.
" Physostigmatis	" of Physostigma.
" Pyrethri	" of Pyrethrum.

Latin Title.	English Title.
Tinctura Rhei Aromatica	Aromatic Tincture of Rhubarb.
" " Dulcis	Sweet Tincture of Rhubarb.
" Saponis Viridis	Tincture of Green Soap.
" Sumbul	" of Sumbul.
" Vanillæ	" of Vanilla.
Triticum	Triticum.
Triturationes	Triturations.
Trituratio Elaterini	Trituration of Elaterin.
Trochisci Ammonii Chloridi	Troches of Chloride of Ammonium.
" Catechu	" of Catechu.
" Krameriæ	" of Krameria.
" Sodii Santoninatis	" Santoninate of Sodium.
Unguentum Acidi Gallici	Ointment of Gallic Acid.
" Chrysarobini	Chrysarobin Ointment.
" Diachylon	Diachylon Ointment.
" Iodoformi	Iodoform Ointment.
" Sulphuris Alkalinum	Alkaline Sulphur Ointment.
Ustilago	Ustilago.
Viburnum	Viburnum.
Vinum Album	White Wine.
" " Fortius	Stronger White Wine.
" Aromaticum	Aromatic Wine.
" Ferri Amarum	Bitter Wine of Iron.
" " Citratis	Wine of Citrate of Iron.
" Rubrum	Red Wine.
Viola Tricolor	Viola Tricolor.
Vitellus	Yolk of Egg.
Zinci Bromidum	Bromide of Zinc.
" Iodidum	Iodide of Zinc.
" Phosphidum	Phosphide of Zinc.

LIST OF ARTICLES DISMISSED FROM THE PHARMACOPŒIA.

Latin Title.	**English Title.**
Acetum	Vinegar.
" Destillatum	Distilled Vinegar.
Achillea	Yarrow.
Acidum Oxalicum	Oxalic Acid.
" Phosphoricum Glaciale	Glacial Phosphoric Acid.
" Valerianicum	Valerianic Acid.
Aconitia	Aconitia.
Aconiti Folia	Aconite Leaves.
Alcohol (sp. gr. 0.835)	Alcohol (sp. gr. 0.835).
" Amylicum	Amylic Alcohol.
Aloe Barbadensis	Barbadoes Aloes.
" Capensis	Cape Aloes.
Alumen	Alum (Ammonia Alum).
Ammonii Chloridum	Chloride of Ammonium (commercial).
Angustura	Angustura.
Antimonii Oxysulphuretum	Oxysulphuret of Antimony.
Apocynum Androsæmifolium	Dogs-bane.
Aqua Acidi Carbolici	Carbolic Acid Water.
" Carbonici	Carbonic Acid Water.
Aralia Nudicaulis	False Sarsaparilla.
" Spinosa	Aralia.
Argentum	Silver.
Arsenicum	Arsenic.
Asarum	Wild Ginger.
Asclepias Incarnata	Flesh-colored Asclepias.
" Syriaca	Common Silk-weed.
Avenæ Farina	Oatmeal.
Barii Carbonas	Carbonate of Barium.
" Chloridum	Chloride of Barium.
Berberis	Barberry.
Bismuthum	Bismuth.
Cadmii Sulphas	Sulphate of Cadmium.
Cadmium	Cadmium.
Caffea	Coffee.
Canella	Canella.
Canna	Canna.
Carota	Carrot Seed.

Latin Title.	**English Title.**
Carthamus	Safflower.
Cassia Marilandica	American Senna.
Castoreum	Castor.
Cataria	Catnep.
Ceratum Resinæ Compositum	Compound Resin Cerate.
" Saponis	Soap Cerate.
" Zinci Carbonatis	Cerate of Carbonate of Zinc.
Cinchona Pallida	Pale Cinchona.
Confectio Aromatica	Aromatic Confection.
" Aurantii Corticis	Confection of Orange Peel.
" Opii	" of Opium.
Conii Folia	Conium Leaves.
Coptis	Goldthread.
Cornus Circinata	Round-leaved Dogwood.
" Sericea	Swamp Dogwood.
Cotula	May-weed.
Creta	Chalk.
Cupri Subacetas	Subacetate of Copper.
Cuprum	Copper.
" Ammoniatum	Ammoniated Copper.
Curcuma	Turmeric.
Decoctum Chimaphilæ	Decoction of Pipsissewa.
" Cinchonæ Flavæ	" of Yellow Cinchona.
" " Rubræ	" of Red Cinchona.
" Cornus Floridæ	" of Dogwood.
" Dulcamaræ	" of Bittersweet.
" Hæmatoxyli	" of Logwood.
" Hordei	" of Barley.
" Quercus Albæ	" of White Oak.
" Senegæ	" of Seneka.
" Uvæ Ursi	" of Uva Ursi.
Delphinium	Larkspur.
Digitalinum	Digitalin.
Diospyros	Persimmon.
Dracontium	Dracontium.
Elaterium	Elaterium.
Emplastrum Aconiti	Aconite Plaster.
" Antimoni	Antimonial Plaster.
Erigeron	Erigeron.
" Canadense	Canada Erigeron.
Euphorbia Corollata	Large-flowering Spurge.
" Ipecacuanha	Ipecacuanha Spurge.
Extractum Arnicæ	Extract of Arnica.
" Belladonnæ	" of Belladonna.
" Cannabis Americanæ	" of American Hemp.
" Conii	" of Conium.
" " Alcoholicum	Alcoholic Extract of Conium (fr. leaves).
" Dulcamaræ	Extract of Bittersweet.

Latin Title.	**English Title.**
Extractum Erigerontis Canadensis Fluidum	Fluid Extract of Canada Erigeron.
" Hellebori	Extract of Black Hellebore.
" Hyoscyami	" of Hyoscyamus.
" Ignatiæ	" of Ignatia.
" Jalapæ	" of Jalap.
" Senegæ	" of Seneka.
" Spigeliæ et Sennæ Fluidum	Fluid Extract of Spigelia and Senna.
" Stramonii Foliorum	Extract of Stramonium Leaves.
" Valerianæ	" of Valerian.
Fermentum	Yeast.
Ferri Ferrocyanidum	Ferrocyanide of Iron.
" Subcarbonas	Subcarbonate of Iron.
" Sulphuretum	Sulphuret of Iron.
Frasera	American Columbo.
Gentiana Catesbæi	Blue Gentian.
Geum	Water Avens.
Gillenia	Gillenia.
Glyceritum Acidi Carbolici	Glycerite of Carbolic Acid.
" " Gallici	" of Gallic Acid.
" " Tannici	" of Tannic Acid.
" Picis Liquidæ	" of Tar.
" Sodii Boratis	" of Borate of Sodium.
Granati Fructus Cortex	Pomegranate Rind.
Helianthemum	Frostwort.
Helleborus	Black Hellebore.
Hepatica	Liverwort.
Heuchera	Alum-root.
Hordeum	Barley.
Hyoscyami Semen	Hyoscyamus Seed.
Infusum Angusturæ	Infusion of Angustura.
" Anthemidis	" of Chamomile.
" Buchu	" of Buchu.
" Calumbæ	" of Columbo.
" Capsici	" of Capsicum.
" Caryophylli	" of Cloves.
" Cascarillæ	" of Cascarilla.
" Catechu Compositum	Compound Infusion of Catechu.
" Cinchonæ Flavæ	Infusion of Yellow Cinchona.
" " Rubræ	" of Red Cinchona.
" Eupatorii	" of Thoroughwort.
" Gentianæ Compositum	Compound Infusion of Gentian.
" Humuli	Infusion of Hops.
" Juniperi	" of Juniper.
" Krameriæ	" of Rhatany.
" Lini Compositum	Compound Infusion of Flaxseed.
" Pareiræ	Infusion of Pareira Brava.
" Picis Liquidæ	" of Tar.
" Quassiæ	" of Quassia.

Latin Title.	English Title.
Infusum Rhei	Infusion of Rhubarb.
" Rosæ Compositum	Compound Infusion of Rose.
" Salviæ	Infusion of Sage.
" Sennæ	" of Senna.
" Serpentariæ	" of Serpentaria.
" Spigeliæ	" of Spigelia.
" Tabaci	" of Tobacco.
" Taraxaci	" of Dandelion.
" Valerianæ	" of Valerian.
" Zingiberis	" of Ginger.
Iris Florentina	Florentine Orris.
Juniperus Virginianus	Red Cedar.
Lini Farina	Flaxseed Meal.
Linimentum Aconiti	Liniment of Aconite.
Liquor Barii Chloridi	Solution of Chloride of Barium.
" Calcii Chloridi	" of Chloride of Calcium.
" Morphiæ Sulphatis	" of Sulphate of Morphia.
" Potassii Permanganatis	" of Permanganate of Potassium.
Liriodendron	Tulip-tree Bark.
Lycopus	Bugle-weed.
Maranta	Arrow-root.
Marmor	Marble.
Mel Sodii Boratis	Honey of Borate of Sodium.
Monarda	Horsemint.
Mucuna	Cowhage.
Nectandra	Nectandra.
Oleum Camphoræ	Oil of Camphor,
" Monardæ	" of Horsemint.
" Origani	" of Origanum.
" Succini	" of Amber (crude).
" Tabaci	" of Tobacco.
Os	Bone.
Ovum	Egg.
Panax	Ginseng.
Papaver	Poppy.
Petroselinum	Parsley.
Pilulæ Quiniæ Sulphatis	Pills of Sulphate of Quinia.
Pilulæ Scillæ Compositæ	Compound Pills of Squill.
Pilula Saponis Compositæ	" Pill of Soap.
Polygala Rubella	Bitter Polygala.
Potassii Carbonas	Carbonate of Potassium.
" " Impura	Impure Carbonate of Potassium.
Pulveres Effervescentes	Effervescing Powders.
Pulvis Aloes et Canellæ	Powder of Aloes and Canella.
Quercus Tinctoria	Black Oak.
Ranunculus	Crowfoot.
Rubia	Madder.
Ruta	Rue.

Latin Title.	**English Title.**
Sabadilla	Cevadilla.
Sabbatia	Sabbatia.
Sago	Sago.
Sesamum	Benne.
Simaruba	Simaruba.
Solidago	Golden-rod.
Spiræa	Hardhack.
Statice	Marsh Rosemary.
Succus Conii	Juice of Conium.
" Taraxaci	" of Dandelion.
Suppositoria Acidi Carbolici	Suppositories of Carbolic Acid.
" " Tannici	" of Tannic Acid.
" Aloes	" of Aloes.
" Assafœtidæ	" of Assafœtida.
" Belladonnæ	" of Belladonna.
" Morphiæ	" of Morphia.
" Opii	" of Opium.
" Plumbi	" of Lead.
" Plumbi et Opii	" of Lead and Opium.
Syrupus Fuscus	Molasses.
Tapioca	Tapioca.
Testa	Oyster-shell.
" Præparata	Prepared Oyster-shell.
Tinctura Castorei	Tincture of Castor.
" Hellebori	" of Black Hellebore.
" Iodinii Composita	Compound Tincture of Iodine.
" Jalapæ	Tincture of Jalap.
" Lupulinæ	" of Lupulin.
" Opii Acetata	Acetated Tincture of Opium.
" Rhei et Sennæ	Tincture of Rhubarb and Senna.
Tormentilla	Tormentil.
Triosteum	Fever-root.
Trochisci Santonini	Troches of Santonin.
Unguentum Antimonii	Antimonial Ointment.
" Cantharidis	Ointment of Cantharides.
" Creasoti	" of Creosote.
" Hydrargyri Iodidi Rubri	" of Red Iodide of Mercury.
" Iodinii Compositum	Compound Iodine Ointment.
" Sulphuris Iodidi	Ointment of Iodide of Sulphur.
" Tabaci	Tobacco Ointment.
Uva Passa	Raisins.
Veratrum Album	White Hellebore.
Vinum Portense	Port Wine.
" Tabaci	Wine of Tobacco.
" Xericum	Sherry Wine.
Viola	Violet.
Xanthorrhiza	Yellow-root.
Zinci Oxidum Venalè	Commercial Oxide of Zinc.

LIST OF CHANGES OF OFFICINAL LATIN TITLES.

Pharmacopœia 1870.	Pharmacopœia 1880.
Acidum Carbolicum Impurum	Acidum Carbolicum Crudum.
“ Muriaticum	“ Hydrochloricum.
“ “ Dilutum	“ “ Dilutum.
“ Nitromuriaticum	“ Nitrohydrochloricum.
“ “ Dilutum	“ “ Dilutum.
Aconiti Radix	Aconitum.
Alcohol Fortius	Alcohol.
Aloe Socotrina	Aloe.
Aluminii et Potassii Sulphas	Alumen.
Ammonii Chloridum Purificatum	Ammonii Chloridum.
Antimonii Sulphuretum	Antimonii Sulphidum.
Apocynum Cannabinum	Apocynum.
Aqua Chlorinii	Aqua Chlori.
Argenti Nitras Fusa	Argenti Nitras Fusus.
Arnica	Arnicæ Flores.
Arsenici Iodidum	Arsenii Iodidum.
Assafœtida	Asafœtida.
Asclepias Tuberosa	Asclepias.
Atropia	Atropina.
Atropiæ Sulphas	Atropinæ Sulphas.
Brominium	Bromum.
Calcii Carbonas Præcipitata	Calcii Carbonas Præcipitatus.
“ Phosphas Præcipitata	“ Phosphas Præcipitatus.
Calx Chlorinata	Calx Chlorata.
Chiretta	Chirata.
Cinchoniæ Sulphas	Cinchoninæ Sulphas.
Conii Fructus	Conium.
Cornus Florida	Cornus.
Emplastrum Assafœtidæ	Emplastrum Asafœtidæ.
Emplastrum Galbani Compositum	“ Galbani.
Extractum Colchici Aceticum	Extractum Colchici Radicis.
“ Stramonii Seminis	“ Stramonii.
“ Belladonnæ Radicis Fluidum	“ Belladonnæ Fluidum.
“ Conii Fructus Fluidum	“ Conii Fluidum.
“ Cornus Floridæ Fluidum	“ Cornus Fluidum.
“ Lupulinæ Fluidum	“ Lupulini Fluidum.

Pharmacopœia 1870.	**Pharmacopœia 1880.**
Filix Mas	Aspidium.
Ferri et Quiniæ Citras	Ferri et Quininæ Citras.
" et Strychniæ Citras	" et Strychninæ Citras.
" Sulphas Exsiccata	" Sulphas Exsiccatus.
Ferrum Redactum	Ferrum Reductum.
Gambogia	Cambogia.
Glycerina	Glycerinum.
Granati Radicis Cortex	Granatum.
Hydrargyri Sulphas Flava	Hydrargyri Subsulphas Flavus
" Sulphuretum Rubrum	" Sulphidum Rubrum.
Hyoscyami Folia	Hyoscyamus.
Iodinium	Iodum.
Iris Versicolor	Iris.
Liquor Arsenici Chloridi	Liquor Acidi Arseniosi.
" Iodinii Compositus	" Iodi Compositus.
" Sodæ Chlorinatæ	" Sodæ Chloratæ.
Lupulina	Lupulinum.
Manganesii Oxidum Nigrum	Mangani Oxidum Nigrum.
" Sulphas	" Sulphas.
Morphiæ Acetas	Morphinæ Acetas.
" Murias	" Hydrochloras.
Oleoresina Filicis	Oleoresina Aspidii.
" Lupulinæ	" Lupulini.
Oleum Erigerontis Canadensis	Oleum Erigerontis.
" Succini Rectificatum	" Succini.
Pilulæ Copaibæ	Massa Copaibæ.
" Hydrargyri	" Hydrargyri.
Pilula Ferri Carbonatis	" Ferri Carbonatis.
Potassii Carbonas Pura	Potassii Carbonas.
" Sulphuretum	Potassa Sulphurata.
Pulveres Effervescentes Aperientes	Pulvis Effervescens Compositus.
Pulvis Ipecacuanhæ Compositus	" Ipecacuanhæ et Opii.
Pyroxylon	Pyroxylinum.
Quiniæ Sulphas	Quininæ Sulphas.
" Valerianas	" Valerianas.
Rhus Glabrum	Rhus Glabra.
Rottlera	Kamala.
Santalum	Santalum Rubrum.
Sodii Carbonas Exsiccata	Sodii Carbonas Exsiccatus.
Spiritus Lavandulæ Compositus	Tinctura Lavandulæ Composita.
Strychnia	Strychnina.
Strychniæ Sulphas	Strychninæ Sulphas.
Syrupus Aurantii Corticis	Syrupus Aurantii.
" Rosæ Gallicæ	" Rosæ.
Tinctura Aconiti Radicis	Tinctura Aconiti.
" Arnicæ	" Arnicæ Florum.
" Aurantii	" Aurantii Amari.
" Cannabis	" Cannabis Indicæ.

Pharmacopœia 1870.	Pharmacopœia 1880.
Tinctura Catechu	Tinctura Catechu Composita.
" Iodinii	" Iodi.
Toxicodendron	Rhus Toxicodendron.
Trochisci Ferri Subcarbonatis	Trochisci Ferri.
" Morphiæ et Ipecacuanhæ	" Morphinæ et Ipecacuanhæ.
Unguentum Benzoini	Adeps Benzoinatus.
" Iodinii	Unguentum Iodi.
" Veratriæ	" Veratrinæ.
Veratria	Veratrina.
Zinci Carbonas Præcipitata	Zinci Carbonas Præcipitatus.

LIST OF CHANGES OF OFFICINAL ENGLISH TITLES.

Pharmacopœia 1870.	**Pharmacopœia 1880.**
Acetate of Morphia	Acetate of Morphine.
Acetic Extract of Colchicum	Extract of Colchicum Root.
Aconite Root	Aconite.
Alum (Potassa-Alum)	Alum (Ammonia-Alum).
American Hellebore	Veratrum Viride.
“ Hemp	American Cannabis.
Antimonial Wine	Wine of Antimony.
Aperient Effervescing Powders	Compound Effervescing Powder.
Arnica	Arnica Flowers.
Atropia	Atropine.
Balm	Melissa.
Bark of Cotton Root	Cotton Root Bark.
“ of Pomegranate Root	Pomegranate.
Benne Oil	Oil of Sesamum.
Bittersweet	Dulcamara.
Black Alder	Prinos.
Blackberry	Rubus.
Black Pepper	Pepper.
Bloodroot	Sanguinaria.
Blue Flag	Iris.
Broom	Scoparius.
Butterfly Weed	Asclepias.
Butternut	Juglans.
Burdock	Lappa.
Calabar Bean	Physostigma.
Chestnut	Castanea.
Chirayta	Chirata.
Citrate of Iron and Quinia	Citrate of Iron and Quinine.
“ of Iron and Strychnia	“ of Iron and Strychnine.
Compound Galbanum Plaster	Galbanum Plaster.
“ Mixture of Liquorice	Compound Mixture of Glycyrrhiza.
“ “ of Iron	“ Iron Mixture.
“ Powder of Ipecacuanha	Powder of Ipecac and Opium.
“ Spirit of Lavender	Compound Tincture of Lavender.
Conium Seed	Conium.
Dandelion	Taraxacum.

Pharmacopœia 1870.	**Pharmacopœia 1880.**
Diluted Muriatic Acid	Diluted Hydrochloric Acid.
" Nitromuriatic Acid	" Nitrohydrochloric Acid.
Dogwood	Cornus.
Elder	Sambucus.
Elecampane	Inula.
Extract of Dandelion	Extract of Taraxacum.
" of Indian Hemp	" of Indian Cannabis.
" of Logwood	" of Hæmatoxylon.
" of Mayapple	" of Podophyllum.
" of Stramonium Seed	" of Stramonium.
Flaxseed Oil	Oil of Flaxseed.
Fluid Extract of American Hellebore	Fluid Extract of Veratrum Viride.
" " of Blackberry	" " of Rubus.
" " of Belladonna Root	" " of Belladonna.
" " of Bittersweet	" " of Dulcamara.
" " of Conium Seed	" " of Conium.
" " of Dandelion	" " of Taraxacum.
" " of Dogwood	" " of Cornus.
" " of Ipecacuanha	" " of Ipecac.
" " of Liquorice Root	" " of Glycyrrhiza.
" " of Mezereon	" " of Mezereum.
" " of Pareira Brava	" " of Pareira.
" " of Pipsissewa	" " of Chimaphila.
" " of Rhatany	" " of Krameria.
" " of Yellow Jasmine	" " of Gelsemium.
Fused Nitrate of Silver	Moulded Nitrate of Silver.
German Chamomile	Matricaria.
Gum Arabic	Acacia.
Horehound	Marrubium.
Hyoscyamus Leaves	Hyoscyamus.
Iceland Moss	Cetraria.
Impure Carbolic Acid	Crude Carbolic Acid.
Indian Hemp	Apocynum.
" "	Indian Cannabis.
Ipecacuanha	Ipecac.
Irish Moss	Chondrus.
Liniment of Ammonia	Ammonia Liniment.
" of Camphor	Camphor Liniment.
" of Cantharides	Cantharides Liniment.
" of Chloroform	Chloroform Liniment.
" of Turpentine	Turpentine Liniment.
Liquorice	Extract of Glycyrrhiza.
" Root	Glycyrrhiza.
Logwood	Hæmatoxylon.
Male Fern	Aspidium.
Marshmallow	Althæa.
May-Apple	Podophyllum.
Mezereon	Mezereum.

Pharmacopœia 1870.	**Pharmacopœia 1880.**
Mezereon Ointment	Mezereum Ointment.
Mucilage of Slippery Elm Bark	Mucilage of Elm.
Muriate of Morphia	Hydrochlorate of Morphine.
Muriatic Acid	Hydrochloric Acid.
Nitromuriatic Acid	Nitrohydrochloric Acid.
Oil of Cajeput	Oil of Cajuput.
" of Canada Erigeron	" of Erigeron.
" of Pimento	" of Pimenta.
" of Wormseed	" of Chenopodium.
Ointment of Belladonna	Belladonna Ointment.
" of Benzoin	Benzoinated Lard.
" of Nutgall	Nutgall Ointment.
Oleoresin of Black Pepper	Oleoresin of Pepper.
" of Male Fern	" of Aspidium.
Pareira Brava	Pareira.
Pellitory	Pyrethrum.
Pill of Carbonate of Iron	Mass of Carbonate of Iron.
Pills of Copaiva	" of Copaiba.
" of Mercury	" of Mercury.
Pimento	Pimenta.
Pipsissewa	Chimaphila.
Poke Berry	Phytolacca Berry.
" Root	" Root.
Poison Oak	Rhus Toxicodendron.
Prickly Ash	Xanthoxylum.
Pure Carbonate of Potassium	Carbonate of Potassium.
Purging Cassia	Cassia Fistula.
Purified Chloride of Ammonium	Chloride of Ammonium.
Pyroxylon	Pyroxylin.
Quince Seed	Cydonium.
Rectified Oil of Amber	Oil of Amber.
Red Sulphuret of Mercury	Red Sulphide of Mercury.
Rhatany	Krameria.
Sage	Salvia.
Scullcap	Scutellaria.
Slippery Elm Bark	Elm.
Socotrine Aloes	Aloes.
Solution of Chloride of Arsenic	Solution of Arsenious Acid.
Stronger Alcohol	Alcohol.
Strychnia	Strychnine.
Sulphate of Atropia	Sulphate of Atropine.
" of Cinchonia	" of Cinchonine.
" of Morphia	" of Morphine.
" of Quinia	" of Quinine.
" of Strychnia	" of Strychnine.
Sulphuret of Antimony	Sulphide of Antimony.
" of Potassium	Sulphurated Potassa.
Sumach	Rhus Glabra.

Pharmacopœia 1870.	**Pharmacopœia 1880.**
Syrup of Blackberry	Syrup of Rubus.
" of Gum Arabic	" of Acacia.
" of Ipecacuanha	" of Ipecac.
" of Orange Peel	" of Orange.
" of Red Rose	" of Rose.
" of Rhatany	" of Krameria.
Thoroughwort	Eupatorium.
Tincture of Aconite Root	Tincture of Aconite.
" of American Hellebore	" of Veratrum Viride.
" of Arnica	" of Arnica Flowers.
" of Bloodroot	" of Sanguinaria.
" of Catechu	Compound Tincture of Catechu.
" of Columbo	Tincture of Calumba.
" of Hemp	" of Indian Cannabis.
" of Orange Peel	" of Bitter Orange Peel.
Troches of Ipecacuanha	Troches of Ipecac.
" of Morphia and Ipecacuanha	" of Morphine and Ipecac.
" of Subcarbonate of Iron	" of Iron.
Valerianate of Quinia	Valerianate of Quinine.
Veratria	Veratrine.
" Ointment	" Ointment.
Vinegar of Bloodroot	Vinegar of Sanguinaria.
Wahoo	Euonymus.
Willow	Salix.
Wine of Ipecacuanha	Wine of Ipecac.
Wormseed	Chenopodium.
Wormwood	Absinthium.
Yellow Jasmine	Gelsemium.
" Sulphate of Mercury	Yellow Subsulphate of Mercury.

TABLE

EXHIBITING THE DIFFERENCES OF STRENGTH OF THE PREPARATIONS, AS MADE ACCORDING TO THE LAST AND THE PRESENT PHARMACOPŒIA.*

Name of Preparation.	Number of parts of active constituent in 100 parts by weight of the preparation.	
	Phar. 1870. †	Phar. 1880.
Acetum Lobeliæ	13	10
Acetum Opii	16.3	10
Acetum Sanguinariæ	13	10
Acetum Scillæ	13	10
Acidum Aceticum	35	36
Acidum Aceticum Dilutum	4.5	6
Acidum Hydrochloricum Dilutum	7.8	10
Acidum Nitricum Dilutum	11.6	10
Acidum Phosphoricum Dilutum	9.8	10
Acidum Sulphuricum	about 100	96
Acidum Sulphuricum Dilutum	12.1	10
Acidum Sulphurosum	about 6.4	3.5
Alcohol Dilutum	39	45.5
Confectio Sennæ	8.33	10
Extractum Aconiti	Leaves	Root
Extractum Conii Alcoholicum	Leaves	Fruit
Ferri et Quininæ Citras	16 Quinine	12 Quinine
Liquor Acidi Arseniosi	0.87	1
Liquor Ferri Chloridi	35	39
Liquor Potassæ	5.8	5
Liquor Potassii Arsenitis	0.87	1
Liquor Sodæ	5.7	5
Opii Pulvis	10 or over	12 to 16
Opium	about 8	9 or over
Opium Denarcotisatum	—	14
Spiritus Anisi	6.8	10
Spiritus Camphoræ	14	10
Spiritus Cinnamomi	8	10
Spiritus Juniperi	2	3
Spiritus Lavandulæ	2	3
Spiritus Menthæ Piperitæ	6.4	10
Spiritus Menthæ Viridis	6.4	10

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* This table embraces all changes which can be considered sufficiently great to require notice, and all changes of above 1 per cent. in the strength of preparations used internally. It does not note trifling changes in the composition of preparations intended for external use.

† For liquid galenical preparations, the figures in this column are only approximately correct, as the calculation into parts by weight involves the specific gravity, which is subject to considerable variation.

DIFFERENCES OF STRENGTH OF THE PREPARATIONS, ETC.—*Continued.*

NAME OF PREPARATION.	Number of parts of active constituent in 100 parts by weight of the preparation.	
	Phar. 1870.	Phar. 1880.
Spiritus Myristicæ	2	3
Tinctura Aconiti	47.6	40
Tinctura Aloes	3.3	10
Tinctura Aloes et Myrrhæ	each 12	each 10
Tinctura Arnicæ Florum	23	20
Tinctura Asafœtidæ	16	20
Tinctura Calumbæ	15	10
Tinctura Cannabis	36*	20
Tinctura Cantharidis	3.5	5
Tinctura Capsici	3.5	5
Tinctura Catechu Composita	7	12
Tinctura Cinchonæ	25	20
Tinctura Conii	Leaves	Fruit
Tinctura Cubebæ	15	10
Tinctura Gallæ	15	20
Tinctura Guaiaci	23	20
Tinctura Guaiaci Ammoniata	23	20
Tinctura Humuli	17.5	20
Tinctura Lobeliæ	15	20
Tinctura Myrrhæ	12	20
Tinctura Nucis Vomicæ	3.5 or less †	2 †
Tinctura Opii	9	10
Tinctura Opii Deodorata	9	10
Tinctura Quassiæ	6	10
Tinctura Rhei	10	12
Tinctura Serpentariæ	15	10
Tinctura Stramonii	15	10
Tinctura Valerianæ	15	20
Tinctura Valerianæ Ammoniata	15	20
Tinctura Veratri Viridis	55	50
Tinctura Zingiberis	31.8	20
Unguentum Acidi Carbolici	12	10
Unguentum Acidi Tannici	6	10
Unguentum Belladonnæ	12	10
Unguentum Gallæ	12	10
Unguentum Hydrargyri Ammoniati	8	10
Unguentum Hydrargyri Oxidi Flavi	8	10
Unguentum Stramonii	12	10
Unguentum Zinci Oxidi	16	20
Vinum Ergotæ	12.5	15
Vinum Opii	13	10
Vinum Rhei	14	10

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* In reality, 6 of the Extract, which is equivalent to about 36 of dry Cannabis Indica.

† Of dry extract.

TABLES OF WEIGHTS AND MEASURES.

A.—MEASURES OF LENGTH.

I. Relation of Metric to United States Measures of Length.

1 Meter = 39.370432 Inches.
1 Decimeter = 3.937043 "
1 Centimeter = 0.393704 "
1 Millimeter = 0.039370 "

II. Relation of United States to Metric Measures of Length.

1 Yard (or 36 Inches) = 0.91439 Meter.
1 Foot (or 12 Inches) = 30.48 Centimeters.

Inches.		Centimeters.	Inches.		Centimeters.	Inch.		Millimeters.
11	=	27.9	5	=	12.7	$\frac{1}{2}$	=	12.5
10	=	25.4	4	=	10.2	$\frac{1}{4}$	=	6.25
9	=	22.9	3	=	7.6	$\frac{1}{8}$	=	3.12
8	=	20.3	2	=	5.1	$\frac{1}{16}$	=	1.54
7	=	17.8	1	=	2.5	$\frac{1}{25}$	=	1.00
6	=	15.2						

B.—MEASURES OF CAPACITY.

III. Relation of Metric to United States Fluid Measure.

Cubic Centimeters.		Fluidounces.	Cubic Centimeters.		Fluidrachms.	Cubic Centimeters.		Minims.
1,000	=	33.81	15	=	4.06	0.40	=	6.49
950	=	32.12	10	=	2.71	0.35	=	5.68
900	=	30.43	9	=	2.43	0.30	=	4.87
850	=	28.74	8	=	2.16	0.25	=	4.06
800	=	27.05	7	=	1.89	0.20	=	3.25
750	=	25.36	6	=	1.62	0.19	=	3.08
700	=	23.67	5	=	1.35	0.18	=	2.92
650	=	21.98	4	=	1.08	0.17	=	2.76
600	=	20.29				0.16	=	2.60
550	=	18.59	Cubic Centimeters.		Minims.	0.15	=	2.43
500	=	16.90	3	=	48.69	0.14	=	2.27
450	=	15.22	2	=	32.46	0.13	=	2.11
400	=	13.53	1	=	16.23	0.12	=	1.95
350	=	11.84	0.95	=	15.42	0.11	=	1.79
300	=	10.14	0.90	=	14.61	0.10	=	1.62
250	=	8.45	0.85	=	13.80	0.09	=	1.46
200	=	6.76	0.80	=	12.98	0.08	=	1.30
150	=	5.07	0.75	=	12.17	0.07	=	1.14
100	=	3.38	0.70	=	11.36	0.06	=	0.97
30	=	1.01	0.65	=	10.55	0.05	=	0.81
			0.60	=	9.74	0.04	=	0.65
Cubic Centimeters.		Fluidrachms.	0.55	=	8.93	0.03	=	0.49
25	=	6.76	0.50	=	8.12	0.02	=	0.32
20	=	5.41	0.45	=	7.30	0.01	=	0.16

IV. Relation of United States to Metric Fluid Measures.

Minims.		Cubic Centimeters.
1	=	0.06
2	=	0.12
3	=	0.18
4	=	0.25
5	=	0.31
6	=	0.37
7	=	0.43
8	=	0.49
9	=	0.55
10	=	0.62
11	=	0.68
12	=	0.74
13	=	0.80
14	=	0.86
15	=	0.92
16	=	0.99
17	=	1.05
18	=	1.11
19	=	1.17
20	=	1.23
21	=	1.29
22	=	1.36
23	=	1.42
24	=	1.48
25	=	1.54
26	=	1.60
27	=	1.66
28	=	1.73
29	=	1.79
30	=	1.85
35	=	2.16

Minims.		Cubic Centimeters.
40	=	2.46
45	=	2.77
50	=	3.08
55	=	3.39
60	=	3.70
70	=	4.31
80	=	4.93
90	=	5.54
100	=	6.16
110	=	6.78
120	=	7.39
Fluidrachms.		
3	=	11.09
4	=	14.79
5	=	18.48
6	=	22.18
7	=	25.88
8	=	29.57
9	=	33.27
10	=	36.97
11	=	40.66
12	=	44.36
13	=	48.06
14	=	51.75
15	=	55.45
16	=	59.10
Fluidounces.		
3	=	88.67
4	=	118.24

Fluidounces.		Cubic Centimeters.
5	=	147.81
6	=	177.39
7	=	206.96
8	=	236.53
9	=	266.10
10	=	295.68
11	=	325.25
12	=	354.82
13	=	384.40
14	=	413.97
15	=	443.54
16	=	473.11
17	=	502.69
18	=	532.26
19	=	561.93
20	=	591.50
21	=	621.08
22	=	650.65
23	=	680.22
24	=	709.80
25	=	739.37
26	=	768.94
27	=	798.51
28	=	828.09
29	=	857.66
30	=	887.23
31	=	916.80
32	=	946.38
64	=	1892.75
128	=	3785.51

C.—WEIGHTS.

V. Relation of Metric to Apothecaries' or Troy Weight.

Grammes.		Grains.
0.0010	=	0.015
0.0013	=	0.019
0.0015	=	0.023
0.0020	=	0.031
0.0025	=	0.039
0.0030	=	0.046
0.0035	=	0.054
0.0040	=	0.062
0.0045	=	0.069
0.0050	=	0.077
0.0055	=	0.085
0.0060	=	0.093
0.0065	=	0.100
0.0070	=	0.108
0.0075	=	0.116
0.0080	=	0.123
0.0085	=	0.131
0.0090	=	0.139
0.0095	=	0.147
0.0100	=	0.154
0.0125	=	0.193
0.0150	=	0.231

Grammes.		Grains.
0.0200	=	0.309
0.0250	=	0.386
0.0300	=	0.463
0.0350	=	0.540
0.0400	=	0.617
0.0450	=	0.694
0.050	=	0.772
0.055	=	0.849
0.060	=	0.926
0.065	=	1.003
0.070	=	1.080
0.075	=	1.157
0.080	=	1.235
0.085	=	1.312
0.090	=	1.389
0.095	=	1.466
0.100	=	1.543
0.110	=	1.698
0.120	=	1.852
0.130	=	2.006
0.140	=	2.161
0.150	=	2.315

Grammes.		Grains.
0.160	=	2.469
0.170	=	2.623
0.180	=	2.778
0.190	=	2.932
0.200	=	3.086
0.210	=	3.241
0.220	=	3.395
0.230	=	3.549
0.240	=	3.704
0.250	=	3.858
0.260	=	4.012
0.270	=	4.167
0.280	=	4.321
0.290	=	4.475
0.300	=	4.630
0.310	=	4.784
0.320	=	4.938
0.330	=	5.093
0.340	=	5.247
0.350	=	5.401
0.360	=	5.556
0.370	=	5.710

RELATION OF METRIC TO APOTHECARIES' OR TROY WEIGHT—*Continued.*

Grammes.		Grains.	Grammes.		Grains.	Grammes.		Grains.
0.380	=	5.864	17	=	262.350	50	=	771.617
0.390	=	6.019	18	=	277.782	60	=	925.941
0.400	=	6.173	19	=	293.215	70	=	1080.264
0.500	=	7.716	20	=	308.647	80	=	1234.588
0.600	=	9.259	21	=	324.079	90	=	1388.911
0.700	=	10.803	22	=	339.512	100	=	1543.235
0.800	=	12.346	23	=	354.944	125	=	1929.044
0.900	=	13.889	24	=	370.376	150	=	2314.852
1	=	15.432	25	=	385.809	200	=	3086.470
2	=	30.865	26	=	401.241	250	=	3858.087
3	=	46.297	27	=	416.673	300	=	4629.705
4	=	61.729	28	=	432.106	333	=	5144.118
5	=	77.162	29	=	447.538	350	=	5401.322
6	=	92.594	30	=	462.970	400	=	6172.940
7	=	08.026	31	=	478.403	450	=	6944.557
8	=	123.459	32	=	493.835	500	=	7716.174
9	=	138.891	33	=	509.268	600	=	9259.409
10	=	154.323	34	=	524.700	700	=	10802.644
11	=	169.756	35	=	540.132	750	=	11574.262
12	=	185.188	36	=	555.565	800	=	12345.879
13	=	200.621	37	=	570.997	900	=	13889.114
14	=	216.053	38	=	586.429	1000	=	15432.350
15	=	231.485	39	=	601.862			
16	=	246.918	40	=	617.294			

VI. The Relation of Apothecaries' (or Troy) to Metric Weight.

Grains.		Grammes.	Grains.		Grammes.	Drachms.		Grammes.
$\frac{1}{64}$	=	0.00101	5	=	0.32399	1	=	3.888
$\frac{1}{60}$	=	0.00108	6	=	0.38879	2	=	7.776
$\frac{1}{50}$	=	0.00130	7	=	0.45359	3	=	11.664
$\frac{1}{48}$	=	0.00135	8	=	0.51839	4	=	15.552
$\frac{1}{40}$	=	0.00162	9	=	0.58319	5	=	19.440
$\frac{1}{36}$	=	0.00180	10	=	0.64799	6	=	23.328
$\frac{1}{32}$	=	0.00202	11	=	0.71297	7	=	27.216
$\frac{1}{30}$	=	0.00216	12	=	0.77759	Ounces.		
$\frac{1}{25}$	=	0.00259	13	=	0.84239	1	=	31.103
$\frac{1}{24}$	=	0.00270	14	=	0.90718	1½	=	46.655
$\frac{1}{20}$	=	0.00324	15	=	0.97198	2	=	62.207
$\frac{1}{18}$	=	0.00360	16	=	1.037	3	=	93.310
$\frac{1}{16}$	=	0.00405	17	=	1.102	4	=	124.414
$\frac{1}{15}$	=	0.00432	18	=	1.166	5	=	155.517
$\frac{1}{12}$	=	0.00540	19	=	1.231	6	=	186.621
$\frac{1}{10}$	=	0.00648	20	=	1.296	7	=	217.724
$\frac{1}{8}$	=	0.00810	21	=	1.361	8	=	248.823
$\frac{1}{6}$	=	0.01080	22	=	1.426	9	=	279.931
$\frac{1}{5}$	=	0.01296	23	=	1.458	10	=	311.035
$\frac{1}{4}$	=	0.01620	24	=	1.555	11	=	342.138
$\frac{1}{3}$	=	0.02160	25	=	1.620	12	=	373.250
$\frac{1}{2}$	=	0.03240	26	=	1.685	13	=	404.345
$\frac{3}{4}$	=	0.04860	27	=	1.749	14	=	435.449
1	=	0.06480	28	=	1.814	15	=	466.552
1½	=	0.09720	29	=	1.869	16	=	497.656
2	=	0.12960	30	=	1.944	17	=	528.759
2½	=	0.16200	40	=	2.592	18	=	559.863
3	=	0.19440	50	=	3.240	19	=	590.966
4	=	0.25920				20	=	622.070

VII. Relation of Metric to Avoirdupois Weight.

		Avoirdupois Ounces and Grains.				Avoirdupois Ounces and Grains.				Avoirdupois Ounces and Grains.	
Grammes.		Oz.	Grs.	Grammes.		Oz.	Grs.	Grammes.		Oz.	Grs.
28.35	=	1		50	=	1	334	500	=	17	279
29	=	1	10	60	=	2	50½	550	=	19	175
30	=	1	25½	70	=	2	205	600	=	21	72
31	=	1	41	80	=	2	359	650	=	22	405½
32	=	1	56½	90	=	3	76½	700	=	24	303
33	=	1	72	100	=	3	230½	750	=	26	198½
34	=	1	87½	150	=	5	127	800	=	28	96
35	=	1	103	200	=	7	24	850	=	29	429
36	=	1	118	250	=	8	358	900	=	31	326½
37	=	1	133½	300	=	10	255	950	=	33	222
38	=	1	149	350	=	12	151½	1000	=	35	120
39	=	1	164½	400	=	14	48				
40	=	1	180	450	=	15	382				

VIII. Relation of Avoirdupois to Metric Weight.

Avoirdupois Ounces.		Grammes.	Avoirdupois Ounces.		Grammes.	Avoidupois Pounds.		Grammes.
$\frac{1}{16}$	=	1.772	6	=	170.098	1	=	453.592
$\frac{1}{8}$	=	3.544	7	=	198.447	2	=	907.18
$\frac{1}{4}$	=	7.088	8	=	226.796	3	=	1360.78
$\frac{1}{2}$	=	14.175	9	=	255.146	4	=	1814.37
1	=	28.350	10	=	283.496	5	=	2267.96
2	=	56.699	11	=	311.846	6	=	2721.55
3	=	85.049	12	=	340.195	7	=	3175.14
4	=	113.398	13	=	368.544	8	=	3628.74
5	=	141.748	14	=	396.894	9	=	4082.33
			15	=	425.243	10	=	4535.92

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